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Lessons Learned from Emergency Remote Teaching and Learning in a Suburban High School

Stephen Beauchamp

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Suburban High School

by

Stephen Beauchamp

A Dissertation submitted to the Education Faculty of Lindenwood University

In partial fulfillment of the requirements for the

Degree of

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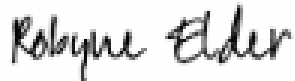
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This dissertation has been approved in partial fulfillment of the requirements for the

degree of

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at Lindenwood University by the School of Education

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Dr. Charles Brazeale, Committee Member   Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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Signature: *Stephen Beauchamp*   Date: 12-9-2022

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Abstract

The purpose of this mixed methods study was to examine the experience of teachers and students from a Midwest, mid-sized suburban high school during Emergency Remote Teaching (ERT) stemming from the COVID-19 pandemic. The researcher surveyed teachers and students about the challenges, benefits, and what they plan to carry forward post-pandemic. Because the teachers and students, prior to and over the course of the pandemic experienced several schedule options, preferences as to which schedule type they preferred were surveyed. Schedule types included Traditional, Block, Hybrid, or Remote schedules. Results indicated that for teachers, ERT was a time of learning and creation. ERT forced teachers to adapt their teaching to a digital environment and learn new digital teaching tools. After learning these tools, coupled with additional time, teachers began creating resources they could utilize during ERT, but also continued to use post-pandemic. Teachers found beneficial aspects of ERT, such as additional time at home, less commuting, time for self-care, and more time with family during ERT. Further, teachers felt students learned less and had difficulty building relationships with students. Schedule preference among teachers was split fairly evenly between the Traditional, Hybrid, and Block schedules, with Hybrid having a small majority, indicating many teachers feeling that they could successfully teach portions of their class remotely, but also that different content areas might have different preferences around schedule. Results for students indicated a much more negative experience. Students felt they learned less overall and struggled with relationships, getting the help they needed, social-emotional health, time management, and focusing on school. Some students were able to adapt and learned strategies for time management, self-reliance, and

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organization. Schedule preference for students indicated that students preferred an A/B

block schedule.

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Chapter One: Introduction

Introduction

The year 2020 was a challenging year for most as the spread of Coronavirus (COVID-19) created a "New Normal" in which all were forced to adapt. This brought about forced change in business and education. Businesses adapted to survive, homes became offices, and virtual meetings became commonplace. School districts were also forced to take drastic measures, moving rapidly to an emergency remote learning environment; but this pandemic has proven that people have the capacity to adapt, even with significant change. Businesses moved to a contact free or virtual approach to connecting with customers. Schools sent materials home with students and worked with students virtually. The COVID-19 pandemic forced innovation from businesses, individuals, and education to continue moving forward. The question lies in what will the education community do with these innovative practices once the pandemic is over? What will students and teachers learn from the "New Normal" and how will it affect education in the future? This study explored the experience of teachers and ninth-12th grade students in a mid-sized, Midwest high school as they navigated the emergency remote and hybrid learning experience, combined with their previous knowledge of a more traditional schedule. The study hopes to discover student and teacher preferences around schedule and differences in male, female, and grade-level experiences, as well as successful methods of adaptation in teaching and learning.

Rationale of the Study

The COVID-19 pandemic has forced districts across the world to rethink how they educate students. Significant changes to scheduling, teaching, and learning were

implemented in order to continue education during the pandemic. Districts moved to various models ranging from fully virtual learning (emergency remote teaching; ERT) to different forms of hybrid schedules. This forced districts to quickly leverage technology to continue educating students. Teachers and students also changed the way they teach and learn. Teachers developed new content, strategies, and resources for teaching content traditionally taught in-person. Students accessed a wide array of resources and communicated with teachers and peers via technology. Significant change is difficult, but provided an opportunity for innovation from teachers. The researcher aimed to discover what innovative practices or other aspects of Emergency Remote Learning benefited students and teachers and could be carried forward post-COVID-19. Additionally, this research could provide insight into potentially new scheduling options for districts that leverage technology, students with more flexible learning opportunities, and additional learning/teaching resources.

Due to the length and state of the ongoing pandemic, limited research is available around virtual or hybrid learning specific to COVID-19. Much of the current research around COVID-19 and education relates to impact on education (Silva de Souza et al, 2020), or how to approach teaching in these new environments (Bryson & Andres, 2020). Related topics, such as online learning and distance learning have been studied in various aspects. Dipietro (2010) and Hamann et al. (2016) studied best practices for online teaching and Pane et al. (2015) explored teaching strategies for teaching online. Mansbach and Austin (2020) and Hodges et al. (2020) provided insights on distance learning program considerations from the teacher aspect. Other related topics include preferences in learning for Generation Z (Genota, 2018; Yu, 2018) and school scheduling

(Canady & Rettig, 1993). At the time of this writing, the COVID-19 pandemic is

ongoing. Currently little research exists around emergency remote teaching during the

COVID-19 pandemic. There is a plethora of research around distance learning, but this

varies from emergency remote teaching, and much of it is geared toward teaching

strategies or learning outcomes in online, college-level courses. Prior to the pandemic,

there were few elementary and secondary schools that had online course offerings as part

of their normal schedules.

Need for Study

According to the World Health Organization (WHO, 2020), regarding the origin

of the COVID-19 virus, "WHO first learned of this new virus on 31 December 2019,

following a report of a cluster of cases of 'viral pneumonia' in Wuhan, People's Republic

of China" (para. 1). As the virus spread across the globe, countries, cities, and states

rapidly adjusted their way of life to protect people from contracting the virus and to

control the spread. This situation evolved into a global pandemic in which, at the time of

this writing, the world was still living in. Because of the ever-changing status of the

pandemic and the constant change and adaptation that government, education, and

businesses have had to endure, there is little research regarding the impact of the

pandemic on education. There is certainly no long-term research available. This study

will add to the current literature by capturing one school's experience teaching and

learning during emergency remote teaching.

Purpose of Study

This study focused on a Midwest suburban high school-level program and their

experience during the COVID-19 pandemic to identify innovative practices and other

beneficial aspects of emergency remote or hybrid learning that have presented themselves

over the course of the pandemic. The researcher surveyed teachers to capture their

experience and to learn what strategies they implemented or discovered to be successful

in their virtual teaching. Data around their subject taught and if they have prior

experience teaching virtually was collected to explore how that impacted their

experience. Teachers were also asked about their preference in school schedule after

experiencing several different types of schedules over the course of the pandemic. The

researcher also surveyed students to capture their experience, schedule preference, and

adaptation strategies to continue their learning. Student gender and grade-level data were

collected and compared to explore if there were differences in experience, adaptation

strategies, or schedule preference.

The results of the study could inform districts in their scheduling of programs,

areas which students and teachers find beneficial, differences between male, female, and

grade-level experiences, and alternative strategies for accessing and delivery of content

and resources. Four research questions and 15 hypotheses were tested in this study.

Questions and Hypotheses

Research Question 1: How did teaching change during Emergency Remote

Learning?

Research Question 2: How did learning change during Emergency Remote

Learning?

Research Question 3: What type of schedules do teachers prefer?

Research Question 4: What type of schedule do students prefer?

Alternate Hypothesis 1: Teachers feel as though students learning was equivalent to prior years.

Alternate Hypothesis 2: Teachers with experience teaching online experienced less anxiety than those that have no experience teaching online.

Alternate Hypothesis 3: The proportions are the same for male and female teachers reporting overall positive feelings around remote learning.

Alternate Hypothesis 4: Teachers have a preference regarding type of schedule.

Alternate Hypothesis 5: Students feel as though learning was equivalent to prior years.

Alternate Hypothesis 6: The proportions are the same for upperclassmen (11th & 12th graders) and lower classmen (9th & 10th graders) reporting overall positive feelings around remote learning.

Alternate Hypothesis 7: The proportions are the same for male and female students reporting overall positive feelings around remote learning.

Alternate Hypothesis 8: Students have a preference as to the subject of the classes they take online.

Alternate Hypothesis 9: Students find certain classes more challenging than others via remote learning.

Alternate Hypothesis 10: Students learn more in a particular subject than others.

Alternate Hypothesis 11: Students find some aspects of remote learning more challenging than others.

Alternate Hypothesis 12: Students find some aspects of remote learning more beneficial than others.

Alternate Hypothesis 13: Students have a preference regarding type of schedule.

Alternate Hypothesis 14: Schedule preference is dependent on gender.

Alternate Hypothesis 15: Schedule preference is dependent on grade level.

Definition of Terms

COVID -19 – According to the World Health Organization, "Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus" (Coronavirus Disease, n.d, para 1).

Distance Learning – The method of teaching designed from the beginning for the teacher and student to be separated physically (Hamann et al., 2016).

Emergency Remote Teaching – The sudden shift to remote or virtual learning due to the current COVID-19 crisis. Having to teach an existing curriculum (which was not intended to be taught virtually) via an online platform (Arruda, 2020; Hodges et al., 2020).

Hybrid Learning – Caulfield (2011) described hybrid learning as learning that takes place with reduced "face time." This time is replaced with time spent outside the traditional classroom. This time outside of class could be remote teaching, asynchronous learning, or even outside experiences that contribute to the students' learning (para 1).

Traditional learning environments – The studied district defines a traditional schedule as one where students physically attend all (8) of their classes each day for 45 minutes per class. No remote learning was incorporated as part of the traditional schedule; however, homework could be assigned outside of class.

Virtual Learning – The practice of leveraging technology to connect students and teachers for the purpose of teaching and learning mainly via an online conferencing software such as Zoom or Google Meet (Bryson & Andres, 2020; Dipietro, 2010).

Summary

The purpose of this study was to explore teachers' and students' experiences teaching and learning during the pandemic at a midsized suburban high school. The researcher believed that students and teachers adapted their teaching and learning during the shift to emergency remote teaching and found new effective strategies to carry forward post-pandemic. The researcher also explored teachers' and students' schedule preferences. COVID-19 caused significant change in education in a very short time span. It is important we explore lessons learned and carry best practices forward. The next chapter examines the history of distance learning and how it enabled educators to continue teaching during the pandemic through Emergency Remote Teaching (ERT).

Chapter Two: Review of Literature

Introduction

　　While Chapter One discussed the background, research questions, and purpose of the study, Chapter Two aimed to review current literature related to Distance Learning, Emergency remote teaching, and education during COVID -19. The history of Distance learning and how it has changed and progressed with technology over time was reviewed. Comparisons and differences between distance learning and ERT were discussed, along with strategies for implementing ERT by countries around the world. Finally, Chapter Two explores student and teacher perceptions and experiences, both positive and negative aspects, including equity.

History of Distance Learning

　　Over the past 200 years, Distance Education has been allowing people to gain an education, regardless of their proximity to an educational institution. According to Harting and Erthal (2005), "Distance education takes place when a teacher and student(s) are separated by physical distance" (p. 1). The first known instances of distance learning took place via correspondence courses dating as far back as the 19th century. Weitzel (2020) described correspondence courses as "asynchronous courses where students are provided with materials to learn at their own pace with limited interaction between them and the instructor" (para. 9). Instructors would prepare course materials, such as books, lessons, assignments, and other learning resources and send them via the mail system to students. Students would then complete their coursework and mail it back to the teacher for grading. Due to the reliance on the mail system, the process was very slow, but allowed those without local access to education to participate. Weitzel (2020)

went on to describe this method of education as mostly self-taught, self-paced, and

limited interaction between the instructor and student (para. 4). During the 19th century,

for many, this was the only accessible option for education, due to their proximity to

educational institutions. This proximity, along with the building of national postal

systems drove the growth and popularity of correspondence courses as the earliest form

of distance education.

Beginnings of Correspondence Courses

The beginnings of distance learning began in early 19th century Europe through

the use of correspondence courses. "Some argue that the beginning of distance learning

was in 1840 when an English educator, Sir Isaac Pitman, taught shorthand by mail"

(Florida National University, 2019, para. 5). A similar example of distance learning

occurred in "1856 when Frenchman Charles Toussaint, who taught French in Berlin, and

Gustav Langschedt, a member of the Society of Modern Languages in Berlin, thought of

establishing a school for correspondence language" (Essa, 2020, para. 4). Given these

early pioneers of distance education, the model began to take hold and spread. "In 1858,

the University of London became the first college to offer distance learning degrees"

(Florida National University, 2015, para. 5). By this time, people in the United States

adopted the trend. Essa (2020) discussed how the Christian churches began using

correspondence courses to spread education among Americans (para. 8). "The

Chautauqua Lake Sunday School Assembly in western New York state began in 1874 as

a program for training Sunday school teachers and church workers" (Simonson et al.,

2019, para. 9). By the late 1800's universities in the United States began formalizing their

own distance learning programs. "Formal outreach programs [in the United States] can

be traced back to 1877, when farmers from around the state [Pennsylvania] began attending Farmers' Institutes to learn about new practices that could help them with their crops and livestock" (Penn State, n.d., para. 5). "In 1888, the International Correspondence Schools, was founded to provide training for immigrant coal miners aiming to become state mine inspectors or foremen" (Florida National University, 2015, para. 6). "In 1892, the University of Chicago became the first traditional educational institution to offer a college-level correspondence learning program in the United States" (Crotty, 2012, para. 2; WorldWideLearn, n.d., para. 2). Also in 1892, Penn State University "launched distance education classes, and management education programs for business and industry followed in 1915" (Penn State, n.d., para. 6). Regardless of their proximity to educational institutions, it is evident from the growth and demand from distance learning programs that people wanted and valued access to education. Educators used the technology of the day, the mail system, to ensure that anyone that wanted an education, could have access via correspondence courses.

Radio

Due to the popularity of the correspondence courses, people continued to look for new ways to deliver or receive an education. Faster ways to communicate and deliver or consume content were needed. In 1896, Italian Inventor Guglielmo Marconi invented the telegraph. At first this technology was used to transmit electronic pulses across a distance, but later grew into a viable method of communication, even transmitting voice across a distance. This discovery grew into what we know today as the radio. During the 1920's people rushed to have radios in their homes and businesses to listen to news, sports, and even entertainments programs (Elon University, n.d, para. 3). Hopkins and

Haworth (n.d.) described radio as a way to deliver educational content with text still being a major component of the learning, but the instructor was able to present information directly to the students. Furthermore, they presented students being able to hear their instructor allows them to feel as if their instructor is in the room, which helped students to perform better vs previous correspondence courses (Hopkins & Haworth, n.d., slide 5). Beginning in the 1920's, Communities, educators, and universities found ways to leverage this technology to expand education to others and broaden their audience. In fact, in an interview with Liz Covart, GBH Forum Network (2020) stated educators were among the first innovators in radio, developing educational "programs" to reach the masses. She goes on to say that the new medium was quickly adopted by universities and schools to leverage the technology (GBH Forum Network, 2020, 10:50). This trend spread quickly across the United States and around the world. "In the 1920s, at least 176 radio stations were constructed at educational institutions" (Simonson et al., 2019, p. 38).

The Ohio School of the Air (1920's), The American School of the Air (1930s-1940's), and the Wisconsin School of the Air (1930's-2002) showed early efforts to use radio in public education. These schools were similar to each other and offered programs that could be used inside the classroom or at home (Hansbrough & Hansbrough, 2014, para. 1; Ohio School of the Air, n.d., para. 2; Wisconsin School of the Air, n.d. para. 2). Teachers would often set aside time in class for an educational radio program, or students and families could listen from home. Ohio School of the Air (n.d.) described a sampling of programs students experienced from the Ohio School of the Air. "The radio school offered special discussions on topics of interest to high school students, such as "Motion Pictures and the High School Student," "The High School Student Looks at His Parents,"

and "The High School Student and Radio." It also aired a series called "Men Who Made

America." The school introduced students to literature through readings of dramatic

stories" (Ohio School of the Air, n.d., para. 3). Other examples of early radio education

programs include the University of Nebraska's radio program, where they would

broadcast courses and students could pay the tuition, complete an exam, and receive

college credit (GBH Forum Network, 2018, 13:25).

     Outside of the United States, a school located in Alice Springs, Australia,

combined the correspondence model with radio. Alice Springs School of the Air

(ASSOA) established the first official school that ran with the sole purpose of reaching

students in remote areas (Alice Springs School of the Air [ASSOA], n.d., para. 2). The

invention of the pedal radio by Alfred Traeger in 1929 made this effort possible. The

pedal radio, called a Traeger Set, allowed those living in the Australian Outback with no

electricity to power a radio via a small generator with bicycle pedals (Royal Flying

Doctors, 2019, para. 7). According to ASSOA, the school officially opened in 1951 to

serve students living in the Australian Outback (ASSOA, n.d., para. 6). The school sent

students course materials and a Traeger Set to listen to broadcasts. Students tuned in three

days a week to listen to 30-minute lessons. At first, students could only listen to

broadcasts, but in future years, students were able to interact with instructors via

transmitters sent to each family. While the technology has changed much since the

1950's, ASSOA is still teaching hundreds of students living in remote areas of the

Australian Outback (paras. 8-12).

New Mediums

Education quickly adopted radio and created many great programs, but radio as a means of distance education never really took hold. By the early 1930's most universities began to pull out of radio (GBH Forum Network, 2018, 18:05). Hopkins and Haworth. (n.d.) described some of the issues many programs ran across with radio delivering educational content (slide 16). They list lack of receivers, reception and transmission issues, geographic proximity to broadcasts, lesson timing/scheduling, and the inability to record lessons for later review. Finally, due to the growth and government regulation of radio, larger networks like NBC and CBS were given priority and ultimately consumed the airwaves with their content. The regulations left education with smaller, more crowded frequencies, and inconvenient time slots to broadcast their content (GBH Forum Network, 2018, 16:10). With the exception of more remote programs, like ASSOS, users and universities ultimately abandoned their radio programs in favor of other technologies. Radio education faded away, but the radio education experience laid the groundwork for future advancements in distance learning by creating a model for educational content delivery (Hopkins & Haworth, n.d., slide 18). That model was transferred and expanded on with new technologies, such as television, internet, and podcasts to meet the needs of students.

The 20th century brought significant change and innovation to distance education. With the invention of the radio, educators began to develop content and programs to deliver to the masses. Holmberg (2005) described a steady expansion of distance learning, but without radical change from the radio age through the 1970's. Educators continued to expand distance education opportunities using new media, like audio

recordings and television programs in which content was delivered (p. 46). Simonson et

al. (2019) described one early venture using television as a medium.

> In the early 1930s, experimental television teaching programs were produced at
>
> the University of Iowa, Purdue University, and Kansas State College. However, it
>
> was not until the 1950s that college credit courses were offered via broadcast
>
> television: Western Reserve University was the first to offer a continuous series of
>
> such courses, beginning in 1951. Sunrise Semester was a well-known televised
>
> series of college courses offered by New York University on CBS from 1957 to
>
> 1982. (p. 38)

Another notable example is the Indiana Higher Education Telecommunications system.

This system, founded in 1967, between four universities in Indiana created a

multipurpose, multimedia, closed circuit statewide telecommunications system to

interconnect the campuses and allow for the delivery of content and other resources. This

system allowed a teacher at one university to teach a course via television, which was

broadcast across the state where students at partnering universities would join. The

system allowed for live interaction between teacher and student (Mupinga, 2005, p. 106;

Indiana College Network, n.d. para 2).

Outside the United States, similar advancements in distance education were

taking place. In 1969, the British Open University was founded in London, England, and

forever changed the perception around distance education in Europe. They offered full

degree programs with sophisticated courses. Prior to this, most programs offering

distance education were private institutions. This was a large demonstration of public

support for distance education and many other public programs in Europe were formed

(Holmberg, 2005 p. 49). Bower and Hardy (2004) described the British Open University as the beginning of the modern era in distance learning. This new founded public support gave acceptance, relevance, and prestige to the idea of distance learning. Throughout the 1970's and 1980's, the British Open University broadcasted television courses to students and public viewers (p. 7). Many of the programs are still available for viewing in their digital archive online, which serves to document their history, as well as allow online access to prior broadcasts (Open University Digital Archive, n.d., para. 1).

Distance Learning via television continued to grow and improve with the expansion of television channels, networks, and now streaming. Entire networks geared to entertaining, educational content were created and are still in production today. Many states and localities developed local television networks that offered various educational programs. One example is the first Public Broadcast station, KHUT (now HoustonPBS) and their University of House program, which aired 13 hours of educational content each week – many of which aired in the evening to allow people who work during the day to access the content (Visual Academy, 2021, para. 3). Cable networks and streaming services include channels, such as The Learning Channel, The Discovery Channel, The Food Network, DIY, and others that were geared towards delivering educational content (Mupinga, 2005, p. 105). Television as a medium for distance education took hold in the 1950's and 1960's and continued well into the 1990's. As described earlier, many educational institutions adopted television to teach programs in which students could earn degrees. But many of the television programs that were created were intended to be entertaining, supplemental material targeted to specific audiences. Programs geared toward early childhood, such as Sesame Street, or even targeting specific topics or

subjects, like events in history or documenting notable people in history. They were not

intended to lead to a degree, rather encourage the pursuit of knowledge to the masses.

Satellite

As technology advanced and more people had access to technology, additional

opportunities for distance learning presented themselves. The 1960's brought the

development of the satellite. This allowed people, regardless of location, access to

educational opportunities. Wang (n.d.) described satellite technology. Information is sent

from a station on earth to the satellite, which is then transmitted back to a different earth

station via a different frequency (p. 122). Users anywhere on earth could access digital

content, such as audio, video, still images, and text, via a connection with a satellite in

space through a satellite dish. Radio and Television, on the other hand, had to broadcast a

signal. If someone lived too far from the station, they would not receive the signal.

Satellite removed the proximity barriers of radio and television and opened up access to

the world. Wang (n.d.) went on to describe successful cases of satellite technology

implementation to reach the masses. Mexico Telesecundaria was launched in 1968 to

extend learning with television support for secondary students. Chinese Education TV

was established in 1978 and was instrumental in providing an education to a large rural

population (Wang, n.d., pp. 124-126). According to Wang (n.d.), "it's scale and reach are

extensive. It offers 529 courses in 55 disciplines and 9 fields through three satellite

channels serving 49 hours of educational programs per day" (p.125). Chinese Education

TV is still in service today, covering 971 million people (China Education Television,

2021. para 2). A more recent example of satellite technology used to provide distance

education is the Austria AVD Project. The Austria AVD Project launched in 2002 and

provided 89 schools on-demand access to educational content, such as videos, lectures, and internet access (Wang, n.d., p. 125).

Impact of the Internet on Distance Education

In 1969, researchers, led by Kleinrock, from UCLA and Stanford created and tested the first two-node network connecting two computers from a distance. This discovery allowed the transmission of data from one computer to another. Later in 1980, Cerf and Kahn expanded on that discovery by developing a set of guidelines to enable any number of computers to connect to the network and transmit information. These guidelines or protocols provided the backbone of what we now call the internet (Hogeback, n.d., para. 3). Aaron and Kahn (2021) defined the internet as "a system architecture that has revolutionized communications and methods of commerce by allowing various computer networks around the world to interconnect" (para. 1). They went on to describe government and industry implementation as early as the 1970's, but that it was not until the 1990's that the general public adopted the technology (Aaron & Kahn et al., 2021, para. 11). The internet allowed anyone connected, regardless of location, instant access to information, as well as the ability to communicate back and forth instantly. Educational institutions quickly adopted the technology. Existing programs, such as the British Open University adapted their programs for online use. In 1980, the Open University used computer mediated communication for the first time to teach one of their courses. By the year 2000, over 50% of their students were taking courses online. As of this writing, the Open University (OU) website stated that over two million students have been served over their 50-year span in distance education (OU, n.d., para. 1). This shift to online programs has spread very quickly across the globe.

Since the early 2000's, universities, including more traditional in-person universities, have been quick to build online learning programs to reach more students. According to Visual Academy (2021), The University of Phoenix became the first online university program to offer both bachelor's and master's degree programs for students and currently 96% of traditional universities offer at least one completely online course (para. 15).

The growth in online distance learning has been significant. According to the National Center for Education Statistics [NCES], "In fall 2016, nearly one-third of undergraduate students (5.2 million) participated in distance education, with 2.2 million students or 13 percent of total undergraduate enrollment, exclusively taking distance education courses" (National Center for Education Statistics, 2018, p. 163). This indicated that there must be advantages for pursuing Distance Learning over more traditional avenues. According to Ferri et al. (2020), "several advantages of online learning have been highlighted: studying from anywhere, at any time; possibility of saving significant amounts of money; no commuting on crowded buses or local trains; flexibility to choose; and saving time" (p. 2). Additionally, it is attractive to more nontraditional students. This would include those currently working, those looking to change or advance their careers, or even people just wanting to go back to school. This changed the demographics significantly with the average student age of 33 at the University of Phoenix (Visual Academy, 2021, para. 6). These aspects of distance learning encouraged more people to either go back to school or take courses online, which has driven growth of online programs significantly. According to Straits Research (2022) the market size for e-learning is expected to grow to 198.9 billion, with incremental growth of 23% (para. 1).

The internet was transformational in distance education. Historically, most of those participating in distance learning programs, did so because they did not have access to education nearby. With the growth of public education since the late 1700's, and advancements in transportation, proximity is becoming less of an issue for most. But with the growth and convenience of the internet, many people are choosing distance education, mainly online, over traditional in-person education because of the benefits. Kantnor (2015) stated, "Online learning is no longer a trend, rather it is mainstream" (p. 21). Online learning is cheaper, more flexible, can be done from home, and in many cases can be done during nontraditional school hours. This flexibility allowed those who wish to get a degree, advance in their career, or even change careers the ability to continue working while going to school online. Online learning has also provided alternative environments to more traditional schools for elementary and secondary students who cannot or prefer not to attend in person. But much of the online learning has been focused on learning at the post-secondary level. Primary and Secondary programs are much less common than university programs. According to the Visual Academy (2021), the University of Phoenix became the first online University offering bachelor's and master's degrees in 1989 (para. 18). There were no secondary online offerings until 1994 when the first online high school, The Whitmore School, was established. The Whitmore School became an alternative school where students could obtain their diploma via online coursework. Students could also utilize the Whitmore School for individual courses for credit recovery or personal interest (Whitmore School, 2021, para. 3). The Whitmore School provided high school students with another option for obtaining their education, but since it was a private institution, there was a cost to attend. Public options soon

became available to students. The Florida Virtual School (FLVS) was the first public

online school to provide Florida students, K-12, with a free online option to obtain their

diploma in 1997 (Florida Virtual School, n.d, para. 1). Since then, the number of public

K-12 online programs has grown significantly. Currently 32 out of 50 states in the United

States provide a free online school for students in K-12. For the states that do not have

programs, there are private options students may take at a cost (National Coalition for

Public School Options, 2021, p. 4).

Distance learning experienced significant growth and transformation since its

beginnings. As technology advanced, the barrier to entry decreased, and additional people

gained access to education. With the invention and growth of the internet, people had

instant access to information and communication that led to unique benefits of distance

education over traditional in-person education. Universities capitalized on the

opportunity, building online programs that are capable of reaching any person with an

internet connection across the globe. This growing access to internet led to significant

growth in online education programs in the early 2000's. The growth in online learning

programs, internet, and improving technologies, such as conferencing software and

learning management systems would prove to be pivotal in continuing education during

the COVID-19 pandemic.

Learning During COVID-19

In 2020, the COVID-19 virus caught the entire world unprepared. Everything

from business, education, and personal lives came to a grinding halt as governments

scrambled to control the disease. The COVID-19 pandemic forced schools and

universities all over the world to either make significant changes to how they educate

students or close their doors entirely until the ongoing pandemic subsided. This is not the

first time schools have had to respond to community health issues. Thomas and Foster

(2020) described different methods utilized by universities in times of crisis. They stated

"during the 1878 outbreak of yellow fever, [educational] institutions relegated control to

local responses and 'shotgun' quarantines to ensure their safety" (p. 188). Many delayed

the start of school, but they had few-to-no protocols in place to protect their students and

faculty. If a student came down with yellow fever, they quarantined the student to prevent

the spread, but no real formal response by most universities. Thomas and Foster (2020)

continued, "Often called the 'Spanish Flu,' the 1918 pandemic flu had more of an impact

on colleges and universities, forcing them to respond more comprehensively" (p. 188).

Because the virus impacted students and spread easily, many of the schools closed their

campuses to students and faculty to reduce the spread of the disease. Some as a

precautionary measure, others due to government regulations. Students and educators

during these times did not have the ability to efficiently continue their education from

home. They simply had to wait out the pandemic before continuing their education.

   The impact of COVID-19 on education will be visible for many years to come.

According to the United Nations (UN), "By mid-April 2020, 94 percent of learners

worldwide were affected by the pandemic, representing 1.58 billion children and youth,

from pre-primary to higher education, in 200 countries" (2020, p. 6). Furthermore, "The

disruptions caused by COVID-19 to everyday life meant that as many as 40 million

children worldwide have missed out on early childhood education in their critical pre-

school year" (UNICEF 2020, para. 1). The UN report continued to describe

underdeveloped countries with little access to technology having to shut down education

at all levels. This caused students who were already behind the rest of the developed

world to fall further behind in all subject areas. In some countries, girls were forced into

marriage or got pregnant, which reduced the likelihood that they would ever finish their

education once schools reopened. Other students looked to find jobs, since they were not

in school, which could also prevent them from completing their education. The pandemic

affected students of all ages. At the university level, universities with little Information

Technology (IT) resources were forced to close their doors until it was safe to open again.

Students in apprenticeship programs could not continue, as workplaces shut their doors.

This gap in learning is likely to cause many to pursue other ventures and never complete

their education (United Nations [UN], 2020, pp. 12-22).

Throughout the COVID-19 pandemic governments around the globe worked to

ensure the safety of their citizens and minimize the impact of the pandemic on education.

Girelli et al. (2020) described Italy's response by hiring an additional 50,000 teachers to

create online learning resources and by allocating one billion euros to school

improvements (p. 52). In the United States, the American Rescue Plan signed into law in

March 2021 provided emergency relief funding for schools to continue to strengthen

teaching and learning (American Rescue Plan, 2021, para. 1). But,

> The ability to respond to school closures changed dramatically with level of [a
>
> country's] development: for instance, during the second quarter 2020, 86 per cent
>
> of children in primary education have been effectively out of school in countries
>
> with low human development – compared with just 20 per cent in countries with
>
> very high human development. (UN, 2020, p. 5)

The response to COVID-19 was unique to each country and heavily dependent on the financial and technological resources at its disposal.

Strategies for Continuing Education During COVID-19

Schools adopted several strategies to continue educating students over the course of the pandemic. The strategies adopted were based on several factors, such as school size, grade level, school population, geographic location, risk of infection, access to technology, and even politics. School districts had no control over many of these factors, but they did have the ability to customize schedules to help mitigate risk and continue educating students.

In-Person Learning

One schedule strategy was to continue in-person learning, but with new protocols to help mitigate the spread of the virus. These precautions included measures recommended by the Center for Disease Control (CDC), such as universal usage of masks, physical distancing, handwashing, cleaning protocols, and contact tracing (Centers for Disease Control, 2021, para. 12). The United States Department of Education (USDE) recommended a "layered approach," which in addition to the CDC suggestions mentioned above, would include helping eligible persons to get vaccinated, universal indoor masking, improving ventilation, physical distancing, testing and screening procedures, and implementing contact tracing and quarantine protocols when an exposure occurs (USDE, n.d., para. 8). This allowed students to continue their education in-person while mitigating risk. Many districts across the United States, particularly in rural areas, were able to adopt this approach. According to the USDE (n.d), this might have been the best option if districts were able. They stated:

> Data collected before and during the COVID-19 pandemic have shown that in-person learning, on the whole, leads to better academic outcomes, greater levels of student engagement, higher rates of attendance, and better social and emotional well-being, and insures access to critical school services and extracurricular activities. (USDE, n.d., para. 2)

Ladyzhets (2021) profiled five schools that managed to stay open during the pandemic across the United States. Four of the five districts were smaller districts in more rural areas, with one exception, Crown Heights in Brooklyn, New York. However, Crown Heights only brought 55% of their students back to in-person class, while the other four examples were fully in-person. In all cases, they attribute their success to the following factors:

- Collaboration with the public health department to make tests and vaccinations available.

- Community partnerships to fill in gaps such as technology, additional space for classrooms or other activities.

- Strong communication to parents – early, often, and across multiple platforms kept parents up to date and in the loop.

- Implementing a mask policy that requires students and staff to properly wear masks.

- Improving ventilation and even holding class outside, when possible, to reduce opportunities for transmission.

These strategies, along with a few others allowed students and teachers to continue education during a difficult portion of the pandemic (Ladyzhets, 2021, paras. 1-43).

Hybrid Schedules

Another strategy was the implementation of a hybrid schedule. Lieberman (2020) describes hybrid learning "as a mix of in-person and online instruction" (para. 2). The benefit of this option is that each school could develop a hybrid schedule that met the need of their particular school community. This led to many variations in schedules for schools.

Figure 1

Which Model Most Closely Reflects What Your District is Implementing This Fall?

Remote and in-person options – parents choose between 100% in-person or 100% remote	34%
Remote and in-person, using staggered schedules with students attending campus 2-3 days per week	20%
Full-time in-person instruction	15%
All remote-based learning, with a mix of live/synchronous learning and on-demand /asynchronous learning	13%
Remote and in person, with small groups of teachers and students working together all day in cohorts	9%
All remote-based learning, with all instruction live/synchronous	4%
Remote and in-person, with half students attending in morning, half in afternoon	2%
Remote and in-person, with schools alternating between opening for weeks at a time, then shutting down for same period.	1%

Source: EdWeek Research Center Survey, 2020.

Figure 1 reports survey results from EdWeek Research Center (2020) on how schools configured their schedules during COVID-19, with almost two-thirds of them being hybrid options.

As described in Figure 1, many schools opted to implement a hybrid model and developed schedules that worked best for their school and community. The hybrid schedule allowed in-person time for teachers to work with students directly, but also limited the amount of time and number of people gathering. Lieberman (2020) suggested that it could be the best of both worlds (in-person and remote learning), but North (2020) argued it could be the "worst of both worlds" (Lieberman, 2020, para. 7; North, 2020, para. 3). North (2020) described several issues with the hybrid model. The first was childcare. Many parents work while students are at school. Having students at home some days poses a challenge for families. The second relates to transmission rates. Some experts argue that the hybrid model could actually increase transmission, because students are unaccounted for during non-school hours. Some may be attending day camps and going to various places for childcare, etc., which could lead to exposure, and then bring it to school (North, 2020, paras. 1-23). Lieberman (2020) described a final issue, which is an equity issue. He stated that when offered a choice, Latino, Black, and Asian parents were more likely to choose full-time remote options (para. 8). Many schools offered a hybrid option to keep students in school as much as possible, but there is a wide range of opinions concerning the hybrid schedule.

Emergency Remote Teaching

Depending on geographic location, school size, and other COVID-19 risks, it was not possible to provide students with an in-person or hybrid option. Instead, they opted to

close their doors entirely and move to a virtual platform. These schools and universities

leveraged technology and the internet to move their classes to an online format to

continue at least some form of education during the pandemic. Some might describe this

shift to online learning as "distance learning," but it is not the same thing as distance

education. Hodges et al. (2020) stated:

> In contrast to experiences that are planned from the beginning and designed to be
>
> online, emergency remote teaching (ERT) is a temporary shift of instructional
>
> delivery to an alternate delivery mode due to crisis circumstances. It involves the
>
> use of fully remote teaching solutions for instruction or education that would
>
> otherwise be delivered face-to-face or as blended or hybrid courses and that will
>
> return to that format once the crisis or emergency has abated. (p. 10)

During ERT, teachers are simply teaching their classes via Zoom, Google Meet, or

similar platforms. These platforms and ERT are the substitute for in-person learning.

Basilaia and Kvavadze (2020) described several categories of online learning. They

describe the first category, Knowledgebase, as giving students material to follow without

additional support. The second category is Online Support, which is a modified version

of Knowledgebase where students would receive materials to review, but would have

access to an online forum, discussion board, or other means of feedback. Asynchronous

Training is the third category in which lessons are not provided in real time, but are

updated regularly. Teachers are available for support via email as needed. The final

category, Synchronous Training, is at a scheduled time, with an instructor present.

Students can interact with the teacher, as well as the other students in the group (Basilia

& Kvavadze, 2020, pp. 1-2). Schools across the globe that opted to go virtual had to

decide which online strategy they would pursue, based on their technology infrastructure and student access to internet.

Challenges and Perception during COVID-19

As the COVID-19 pandemic unfolded, along with the implementation of lockdowns, many schools were forced to close their doors to prevent further spread of the virus. For the schools that opted to go virtual, teachers very quickly adapted their teaching and their materials to present via an online format. Districts and parents scrambled to ensure that students had access to the technology needed to participate. This created many challenges for students, teachers, administrators, and parents.

Teacher Challenges and Perception

One challenge was lack of experience and professional development for teachers teaching online. Many teachers had to learn the technology for online learning and implement it simultaneously. Teaching in person is different than teaching online and does not share the same set skills or best practices. Due to the rapid shift, teachers were not adequately prepared to move their classroom online. DiPietrio et al. (2010) studied successful online instructors in a virtual Michigan high school prior to the pandemic. They categorized skill sets and established best practices within each skill set. The categories included Classroom Management and Pedagogy. Classroom management aimed to establish best practices in monitoring activity and communications. These included practices, such as addressing abuses or inappropriate behavior in course forums or class sessions and looking for warning signs of students in crisis. There are many best practices identified under Pedagogy, but some highlights were comfort with content and technology, organization and structure of course and content, incorporating multiple

strategies for relationship building, learning styles, and incorporating student choice into

the content (DiPietro, 2010, pp. 13-29). The Michigan teachers studied had a minimum of

three years of experience teaching online to develop and hone these skills. Teachers that

suddenly moved to ERT were not given the luxury of time or even an example model that

worked. Most teachers had never taught online before and were not familiar with the

various technologies required to teach online. These technologies are applications like

video conferencing software, learning management systems, digital presentations,

quizzes, word processors, or even video and audio editing software. In one study in

Spain, Rodríguez-Muñiz et al. (2020) studied math teachers teaching during COVID-19

and found that 40% of teachers had never utilized any of these technologies prior to ERT

(p. 6). Additionally, many teachers did not have experience with the conferencing or

learning management systems (LMS). Instead of talking face to face, they now had to

learn to meet and communicate via platforms, such as Zoom, Microsoft Teams, or

Google Meet. Instead of passing out physical paper, they now had to distribute materials

and content virtually via Google Classroom, Canvas, or other LMS (Girelli et al., 2020, p.

4). Teachers in Italy were surveyed approximately two months into the switch to ERT to

better understand their experience. Initially, teachers felt overwhelmed with the amount

of change and all the new technologies introduced. When surveyed again later,

approximately 92% of teachers reported that it took about two weeks to adapt to online

teaching, with 8% still not comfortable. They reported improved feelings about the

technologies and improvements in technological skills. Many seemed positive about the

experience, even while suggesting it required a significant increase in time and workload

(Giovannella et al., 2020, pp. 1-13). Girelli et al. (2020) also mentioned increased work

load for teachers. Over the years teaching, teachers develop resources and materials for

their students. Suddenly, with the shift to emergency remote teaching (ERT), all of those

resources have to be reworked to fit the new format (p. 4). Many teachers created

supplemental resources and videos for their students to utilize in the teacher's absence.

Recreating resources takes considerable time to develop and add to the teacher's current

schedule (Girelli et al., 2020, pp. 51-56). In addition to workload, struggles experienced

by the Italian teachers included internet and bandwidth issues, inadequate devices,

unsuitable work space, inadequate technological skills, multiple technological

environments, and limited expressive modalities (Giovannella et al., 2020, pp. 1-13).

When people experience adversity, much can be learned from the experience. The

shift to ERT was sudden, but teachers adapted and even developed a new skill set. They

learned and adapted to the new way of teaching and now have additional tools that can

also be used when they return to the classroom. They expanded their digital literacy and

learned how to connect with students across screens. Similarly, the additional content or

resources that teachers created for students could now also be used in the traditional

classroom, or as supplemental material online. One study conducted by Williams et al.

(2021) supports this finding. Their study participants surveyed stated that the extra work

required to learn new technologies and create new learning experiences proved

beneficial. The teachers that put the time in yielded better results and learned more. The

participants also expressed a shift in mindset around teaching and they did not want the

beneficial aspects, such as the new online learning tools and methods of communication,

to go to waste, post-pandemic. Finally, in looking to the future, teachers wanted a plan in

place, including effective training in case we ever have to resort to ERT in the future

(Williams et al., 2021, pp. 11-15).

A final benefit of ERT was a renewed partnership between teachers and parents.

Teachers entered the student's home on a daily basis via a virtual platform to work with

students. Parents were able to see how hard teachers were working for their students, as

well as collaborate with teachers to ensure their students' success (Girelli et al., 2020, p.

5; Williams et al., 2021, p. 13). In addition, particularly parents of younger students, had

to be a support and more engaged in their child's learning, which further enabled the

parent/teacher partnership.

Teacher challenges and perception during COVID-19 had much do with

familiarity with technology and access to adequate technology and resources. Teachers

with experience teaching online had an advantage over those without. The shift to ERT

was sudden for everyone, even traumatic for some, but forced educators to quickly learn

new technology tools to continue educating students. Once teachers adapted, many felt it

caused them to grow and learn new strategies and technology.

Student Challenges and Perception

Students also had a wide range of experiences related to ERT. Three teen

adolescents compared their experiences prior to and during COVID-19 ERT. They shared

that they missed in-person interactions with friends and teachers and struggled to create a

home environment free from distractions. They also shared it was difficult to separate

school and home, because it was the same place. But as they gained experience with

online schooling, they learned to improvise and adjust to the constant state of change.

Some positive items mentioned by the teens were learning time management, self-

motivation, and self-awareness in their learning. The students learned to create a comfortable space for learning, monitor their own progress, limit distractions, advocate for themselves, and even enjoy extra free time to pursue interests and spend time with family (Schaefer et al., 2020, pp. 1-12). This suggests that in order to be successful, students had to learn more about themselves and discover what worked for them. The students learned to become more independent and take control of their learning.

Another aspect of ERT that emerged was sleep schedules for teens during COVID-19. According to Gruber et al. (2020), an unexpected benefit of ERT presented itself. In a study related to sleep schedules for students during COVID-19, students reported improved sleep habits including longer sleep, better quality sleep, and less sleepiness during the day. Students attributed better sleep to later start times for school, ability to nap, and less school related-anxiety and stress (Gruber et al., 2020, pp. 1-2).

Similarly, to teachers, students were able to adapt to the change. Some students even found beneficial aspects of ERT or learned much about themselves and their learning in the process. But there also were negative aspects for many students across the globe. Schaefer et al. (2020) mentioned that some students struggled social emotionally, not being able to interact with their peers in person, as well as limiting distractions when trying to focus on school (pp. 1-12). Almosa (2002) described the issue of cheating being an issue during online learning, as there is no one proctoring tests and other assessments. ERT put a sort of honor system in place with teachers having no control over whether students cheated or not (p. 7). Shamir-Inbal and Blau (2021) described that while many students successfully adjusted their schedules and learning routines, many did not. Shamir-Inbal and Blau (2021) stated "effective online learning during emergency events

is based on the relevant skills that teachers and students have developed during regular learning" (p. 2). Most students and teachers, particularly elementary and secondary students and teachers, did not have prior learning experiences related to online teaching and learning. As a result, "The challenges for students included improving their self-regulated learning skills, enhancing their interest and responsibility during the home learning process, and making appropriate adjustments in their learning routines" (Shamir-Inbal & Blau, 2021, p. 1244).

Equity

Another negative aspect of ERT was equity for all students. Williams et al. (2021) referred to the equity issue as the digital-divide in two levels. The first level describes those who have access to technology versus those that do not (p.4). Those that did not have access to the internet or devices that could connect them to the internet were not able to participate in the same way as those with the technology. Additionally, these schools, which tend to be in low-income areas, also had limited technological infrastructure to support the technology, even if they were able to provide devices to students. But not all schools were able to provide students with the necessary technology to participate online. Girelli et al. (2020) described how this was handled across Italy. "To combat this, individual school districts created learning resources for students, making them accessible for parents to collect, or delivering them directly to students' homes in an attempt to continue teaching and learning where e-learning was not possible" (p. 51). When e-learning was not possible, schools and teachers did what they could to continue as much learning as possible.

"The second level of the digital divide transitions from access to technology and the internet to the efficacy of its use" (Williams et al., 2021, p. 4). Depending on what device is used, limitations exist. Programs are not available or compatible with certain devices, like cell phones, which can be limiting to teachers and students. Additionally, technological skills or lack of effective training prevent both teachers and students with lesser experience from creating, locating, or consuming effective resources.

Building on the issue of equity, ERT also caused hardship with special needs students. They no longer received the same support they had during in-person learning, which caused many to fall behind or not receive the support that they needed. Girelli et al. (2020) mentioned inequity between students that have consistent parental or caregiver support versus those that do not (p. 4). Students with more supports and access have an advantage over students without these resources. Kaden (2020) described older students having to complete their schooling while watching and caring for younger siblings, due to parent work schedules. The burden or benefit of ERT was not the same for all students (p. 9).

Student challenges during ERT had much to do with equity and physical separation from their peers and teachers. They missed in-person interaction with other people and found it difficult to separate home from school. Some students had an advantage over other students, based on technology access, prior experience, parental support, and technological skill. Students did not all have the same experience and some were burdened with responsibilities in addition to their schoolwork. But even though there were negative aspects and it was not the same experience for all, education was able to continue for most through the pandemic by leveraging technology.

Summary

Distance Education has been around as early as the late 1700's and served the purpose of reaching learners that wanted to gain an education, but did not have access to a school nearby. Distance Education has changed forms over the years as technology improved and new mediums presented themselves. First through mail correspondence, then via radio, television, satellite, and finally the internet. With these new mediums, Distance Education has gained popularity and credibility with the general public to the extent that it is now mainstream. So much, so that many people today are opting for online learning over in person because of the cost, flexibility, and convenience. Because of the work done with Distance Education, it allowed many institutions to adapt their schooling to a virtual platform during the COVID-19 pandemic. This rapid shift was called Emergency Remote Teaching as teachers were temporarily teaching courses intended to be taught in person remotely to students via the internet. There were many challenges associated with this drastic shift in education. Many students across the globe did not get the opportunity to continue their education and the learning gap continued to grow. Students that did get to continue their education also had challenges. Without the ability to meet in person, students with special needs did not get the support they needed. Other students with lack of parental support also suffered and continued to fall behind in school. Over the course of the pandemic, teachers and students navigated uncharted territory in education. But with adversity, comes problem solving and innovation. Teachers found ways to connect with students, created new content, and developed a new set of teaching skills. There is much to be learned from teachers' and students' experiences during the COVID-19 pandemic. Will this forever change education? What

new practices will we carry forward post-pandemic? What change would students and

teachers want to see to traditional schooling after this experience? How can we continue

to leverage technology after the pandemic to create a more engaging and effective

education for students?

Chapter Two explored the origins and growth of distance learning over time and

the sudden shift to ERT. Chapter Three describes the site, purpose, context, and data

analysis, of the study.

Chapter Three: Research Method and Design

Purpose

The purpose of this mixed methods study was to explore the transition from a traditional school schedule and learning environment to a completely virtual environment (ERT) due to the COVID-19 pandemic. The objective was to discover what innovative practices or other aspects of Emergency Remote Learning were beneficial to students and teachers and could possibly continue to be implemented post COVID-19. This research could also provide insight into potentially new scheduling options for districts that leverage technology and provide students with more flexible learning opportunities and additional learning/teaching resources.

Students and teachers from a mid-sized, Midwest suburban high school were surveyed and their experiences examined to better understand how they adapted, what they learned, what strategies they intend to carry forward post-pandemic, and what their preference is in scheduling, having experienced several different schedules over the course of the pandemic. The researcher conducted the study in Fall 2021. For students, the quantitative aspect allowed the researcher to examine the level of learning for students and schedule preference across gender, subject area, and grade level. For teachers, the quantitative analysis allowed the researcher to examine the student level of learning, sentiment of teachers, and schedule preference across gender, subject area, and grade level. It also allowed the researcher to examine teacher feelings about student learning, while teaching online verses traditional schedules across content areas. The qualitative aspect for students allowed the researcher to examine the strategies students adapted and would like to carry forward post-pandemic. The qualitative aspect for

teachers allowed the researcher to examine how teaching changed during ERT, including strategies they learned or adopted and what they planned to carry forward post-pandemic.

The results of the study aimed to help districts and educators to better understand the experiences of students and teachers during ERT. These captured experiences could inform educators and districts around best practices in online teaching and professional development opportunities for teachers, and better understand qualities or strategies that students found helpful in their learning. Additionally, the findings could provide insight into potentially new scheduling options for districts that leverage technology, provide students with more flexible learning opportunities, and additional learning/teaching resources.

At the onset of this writing, little research had been published relating to education during the COVID-19 pandemic. Since that time, studies continued to be published adding to the collective knowledge base around education during COVID-19 from researchers around the globe. This paper will add the experiences of teachers and students from a midsized, Midwest high school to that knowledge base. There is a need for the current study, as the topic is still relatively new and there is still much to be learned.

Research Site and Context

Students and teacher participants were recruited from the current enrollment or current staff in a mid-sized, Midwest high school that, due to the pandemic, experienced Emergency Remote Learning. Mid-sized, Midwest high school (a pseudonym) was a high achieving school located in St. Louis County, with dedicated and highly qualified staff. The district covered nine square miles and consisted of one early childhood center, three

grade schools, one middle school, and one high school. The high school enrollment for

the 2020-2021 school year was 908 students. The 2019-2020 school year enrollment was

913. Students had consistent support from teachers and parents were mostly engaged with

their students' learning. Midwest high school started the 2019-2020 school year

consistent with previous years. This involved an in-person, traditional schedule, which

consisted of the same eight, 45-minute periods each day. Other than a few summer

courses (Personal Finance and Government), the school did not have any online course

offerings. In March 2020, while on spring break, Mid-sized, Midwest high school moved

to Emergency Remote Teaching to limit the spread of COVID-19. The remainder of the

2020 year remained virtual. Throughout the COVID-19 pandemic, students experienced a

variety of virtual and in-person schedules. From mid-March 2020 to May 2020, all

students learned using a virtual platform with an eight-period day, one hour for each

class. At the start of the following school year (August 2020), all students learned on a

virtual platform with an A/B block schedule. A-day consisted of periods 1 through 4 and

B-day periods 5 through 8. Each period was one hour long with teacher office hours in

the afternoon for extra help. This persisted until the end of November 2020, when

students had the option to return in person. The remainder of the 2020-2021 school year,

the schedule remained the same A/B block, but students had the option to learn in-person

or remain online. In an effort to reduce the number of students in the building and

exposure, half of the in-person students attended in the morning, with the remaining

attending in the afternoon. The in-person and online teaching occurred simultaneously

with teachers streaming their classes. At the start of the 2021-2022 school year, all

students returned to in-person learning on a full day schedule, utilizing a full day A/B

block schedule, with periods 1 through 4 on A days and periods 5 through 8 on B days. This extended class times from one hour to 85 minutes per class. Students and teachers included in the survey experienced several different schedule types and significant change over these few years.

Study Participants

Student participants had to be in grades 9 through 12, currently enrolled within the district, and must have participated in Emergency Remote learning and Traditional schedule models. Teacher participants had to be current teachers in the district, have participated in our Emergency Remote teaching and Traditional models, and teach grades 9 through 12. Recruitment was voluntary. A *Qualtrics* survey (Appendix A) was sent out via email to all high school students at least 18 years of age, as well as staff members. The email script (Appendix B), as well as the survey, included the Informed Consent form attached in Appendix C. Parents of students under 18 years of age were also emailed the survey link, which they could forward to their students, with consent to participate. The email to parents included the Informed Consent Form for Minors, included in Appendix D. Participants could opt to participate or not.

Sample Size and Criteria

Because the survey was optional, the sample size of the data was dependent upon how many people chose to provide responses. This study consisted of two groups. For students, the sample size could range from one to 950 students. For teachers, it could range from one to 85 teachers. None of the current students or teachers were excluded and responses were optional.

Following the survey, there were a total of 25 teachers that responded and 108

students that participated in the study. Of the teachers, 64% identified as male and 36%

identified as female. Teachers also represented a variety of content areas with 44%

teaching an elective course (PE, Health, Career and Tech Ed, or the Arts), 24% teaching

science, 16% Math, 8% teaching English, and 8% teaching Social Studies. Of the

students, 48% identified as female, 44% identified as female, 3.7% identified as non-

binary/other gender, and 3.7% preferred not to say. Students were currently enrolled in

grades 9 through 12, with 22.2% in ninth grade, 32.4% in 10th grade, 19.4% in 11th

grade, and 26% in 12th grade.

Methodology

This was a mixed methods study. Teachers and students were surveyed to gain

insight in their experiences of teaching and learning during the pandemic. The following

data was reviewed for teachers: gender, content area, prior experience teaching in a

virtual environment, schedule preference, whether students learned less/more vs in-

person, and strategies they found effective teaching virtually. The following data was

reviewed for students: grade level, gender, schedule preference, did they learn less/more

vs in person, what classes they felt they learned the most in, and what strategies they used

to maximize their learning.

Study Limitations

There were some limitations for this study. The first was participant bias.

COVID-19 has impacted many people in many different ways. Since this study is related

to the effects of COVID-19, a negative bias may be present due to external events, even if

beneficial aspects of scheduling/teaching/learning are present. The second limitation is

similar. Since participation is voluntary, participants with strong opinions were more likely to respond. This may skew the results one way or another, as those with fairly neutral opinions might choose not to participate. The third limitation relates to the small number of teacher participants with prior online teaching experience. Only three teachers in the sample had prior online teaching experience, which could influence the findings in NH2. Finally, the researcher was a teacher at the school in which the study was conducted.

Data Analysis

Surveys were administered to teachers via email at the start 2021-2022 school year. Surveys were administered to students twice during the school year. Once at the start of the year (September 2021) and a follow-up a few weeks later. For the qualitative data, the responses were summarized, and the results were written up to look for common themes. For the quantitative data, statistical analysis was conducted to test the hypotheses.

- A Chi Square test was conducted to explore if learning was equivalent to prior years

- A Chi Square test was conducted to explore if anxiety level was independent of prior online teaching experience.

- A two-sample z-test for difference of proportions was conducted to explore if there was a significant difference between male and female overall positive feelings around remote teaching.

- A Chi Square test was conducted to explore if there was a difference in schedule preference for teachers.

- A Chi Square test was performed to explore if students felt learning during ERT was equivalent to prior years.

- A two-sample *z*-test was conducted to determine if there was a significant difference in the upper classmen and lower classman reporting overall positive feelings around remote learning.

- A two-sample *z*-test was conducted to determine if there was a significant difference between male and female students reporting overall positive feelings around remote learning.

- A Chi Square test was conducted to explore if there was a difference in student preference around what classes they prefer to take online.

- A Chi Square test was conducted to explore if there was a difference in which classes students reported as more challenging during remote learning.

- A Chi Square test was conducted to explore if there was a difference in which classes students reported learning more in during remote learning vs. in-person learning.

- A Chi Square test was conducted to explore if there was a difference in which aspects of remote learning students found challenging.

- A Chi Square test was conducted to explore if there was a difference in which aspects of remote learning students found beneficial.

- A Chi Square test was conducted to explore if there was a difference in student preference around schedule type.

- A Chi Square test was conducted to explore if there was a difference in male or female student preference around schedule type.

- A Chi Square test was conducted to explore if there was a difference in grade-level student preference around schedule type.

- All tests were run with $\alpha = .05$ level of confidence

Teacher Research Questions

Research Question 1 (RQ1): *How did teaching change during Emergency Remote Learning?*

Research Question 1 supporting instrument questions:

- What teaching strategies or practices did you find effective during remote learning?

- What are the limitations of teaching remotely?

- What aspects, both personally and professionally, of the remote teaching schedule did you find beneficial?

- What were the negative aspects, both personally and professionally, of the remote teaching schedule?

- What new methods or strategies will you carry forward post-pandemic?

Research Question 2 (RQ2): *What type of schedules do teachers prefer?*

Research Question 2 supporting instrument questions:

- What subject do you teach?

- Do you prefer a traditional, hybrid, or remote learning environment for your classes?

Teacher Null Hypotheses

- **NH1:** Teachers feel as though student learning during ERT was not equivalent to prior years.

- **NH2:** Teacher level of anxiety was not independent of whether a teacher had previous experience teaching online or not.

- **NH3:** The proportions for male and female teachers reporting overall positive feelings around remote learning are not the same.

- **NH4:** There is no difference in preference around type of schedule for teachers.

Student Research Questions and Instrument Alignment

Research Question 3 (RQ3): *How did learning change during Emergency Remote Learning?*

Research Question 3 supporting instrument questions:

- Do you feel like you learned as much during remote learning as during in-person learning?

- Was remote learning an overall positive or negative experience for you?

- What aspects of remote learning did you find challenging?

- What aspects of remote learning did you find beneficial?

- What strategies or new methods did you learn that you plan carry forward post-pandemic?

- What classes did you find the most challenging via remote learning?

Research Question 4 (RQ4): *What type of schedule do students prefer?*

Research Question 4 supporting instrument questions:

- Are there classes you would prefer to take remotely?

- What type of schedule do you prefer?

Student Null Hypotheses:

- **NH5:** Students do not feel as though learning online was equivalent to prior years.

- **NH6:** The proportions are not the same for upperclassmen (11th & 12th graders) and lower classmen (9th & 10th graders) reporting overall positive feelings around remote learning.

- **NH7:** The proportions are not the same for male and female students reporting overall positive feelings around remote learning.

- **NH8:** Students do not have a preference as to the subject of the classes they take online.

- **NH9:** Students do not find certain classes more challenging than others via remote learning.

- **NH10:** Students did not learn more in a particular subject than others.

- **NH11:** Students did not find any aspects of remote learning more challenging than others.

- **NH12:** Students did not find any aspects of remote learning more beneficial than others.

- **NH13:** Students show no preference regarding type of schedule.

- **NH14:** Schedule preference is independent of gender.

- **NH15:** Schedule preference is independent of grade level.

Summary

COVID-19 was a major disruption in education. Educators and students responded to that disruption in many different ways. Understanding the experiences of

those involved to capture the experience and not lose the knowledge gained is crucial.

Students and teachers at a midsized, Midwest high school were surveyed to better

understand their experience teaching and learning during COVID-19. Additionally,

having experienced several different schedule options over the span of a few years, the

researcher captured both student and teacher schedule preferences to examine what seems

to work best for teachers and students. Chapter Four reports the results to the survey

responses collected from teachers and students.

Chapter Four: Results

Introduction

Chapter Three focused on the context and limitations of the study, as well as the process of data collection. Chapter Four focused on the analysis of the actual qualitative and quantitative data collected via the online survey to teachers and students. The researcher answered four research questions and tested 15 hypotheses.

Results and Analysis

Research Question 1 (RQ1): *How did teaching change during Emergency Remote Learning?*

1. What teaching strategies or practices did you find effective during remote learning?

Teachers were asked to rank six online teaching strategies from 1 to 6, with 1 being the most frequently used strategy and 6 being the most infrequently used strategy. The choices for online strategies used were: Individual Check-ins with students, Regular Feedback to/from students, Providing Additional Materials for students to review outside of class, Posting lesson recordings for students to access, Online forums/discussions, and Flipping the classroom. Teachers were later given options to write in effective strategies they used and plan to continue to use post-pandemic, which will be covered in later research questions. Figure 2 displays teacher responses and rank of strategies used.

Figure 2

Rank of Teaching Strategies Used During ERT
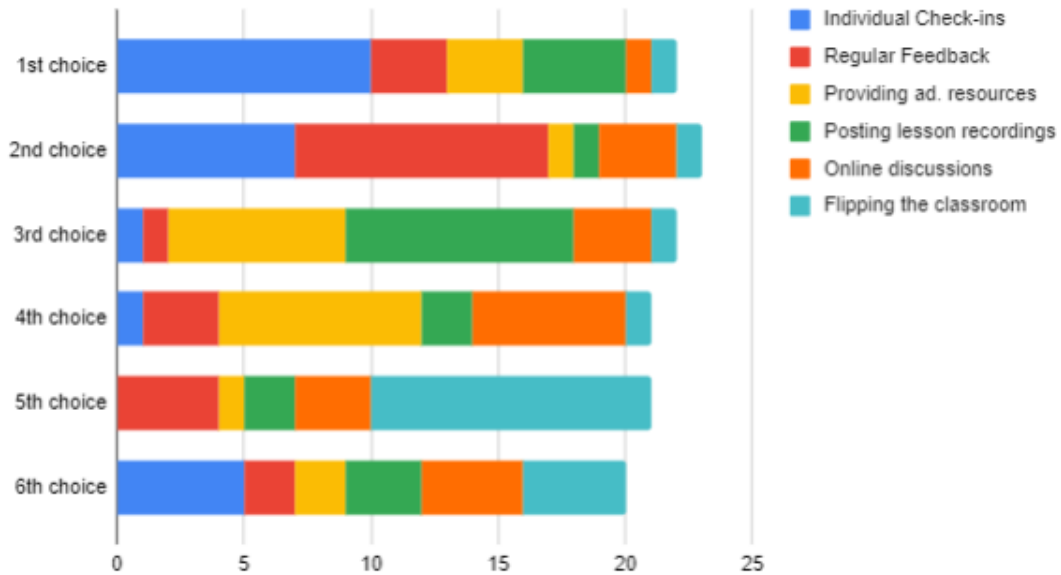
What aspects of remote learning did teachers find challenging?

Teachers were asked to rank the aspects of teaching online that they found most challenging from 1 to 7, with 1 meaning the most challenging aspect and 7 the least challenging aspect. The choices they had for this response were: Teaching Strategies, Classroom Management, Lesson Planning, Finding Appropriate Resources for Students, Relationship Building, Group Work, and Other. Figure 3 displays the responses by teachers in regards to the most challenging aspects of teaching remotely.

Figure 3

Rank of Most Challenging Aspects of Teaching Online
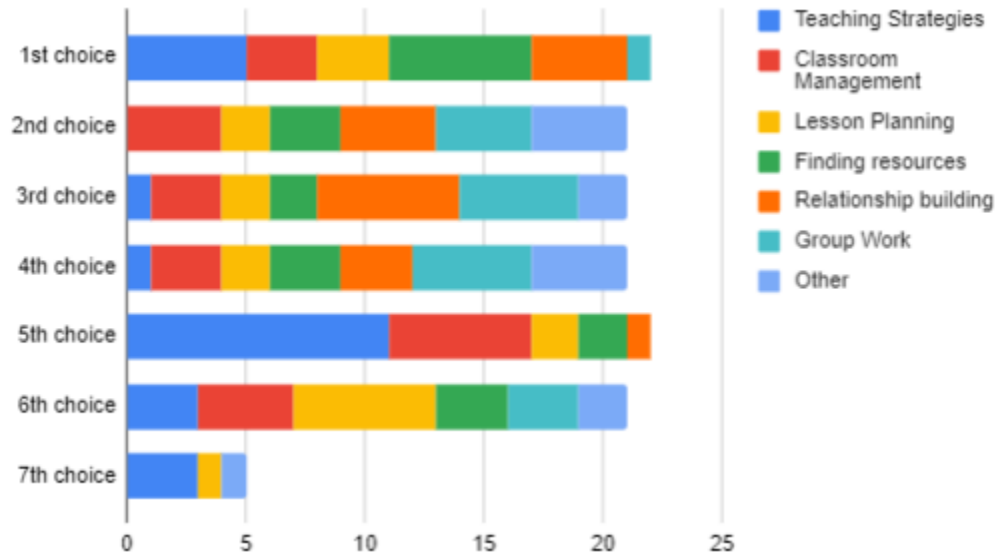
2. What aspects, both personally and professionally, of the remote teaching schedule did you find beneficial?

Teachers were asked the question, "What aspects, both personally and professionally, of the remote teaching schedule did you find beneficial? The question was open ended and teachers were able to respond with unique beneficial aspects of the remote teaching schedule. The responses were broken down into five themes: Flexible Schedule, Time, Self-Care, Working from Home, and Tech Competency. It is important to note that there were responses that could fall into more than one category.

The first theme, Flexible schedule, included responses related to teachers feeling like they had more control over their schedule. Sample responses were: "the ability to end a lesson in its natural place vs forcing it into a time slot" and "It was important for me to be able to engage with students all the time, as much as possible." Teachers valued the ability to have more control over their schedules.

The second theme, Time, included responses in which teachers expressed they had more time during ERT than before. Responses that referred to time generally included a reasoning as to why the extra time was beneficial or how the extra time was used. Some examples of how time was used include organizing their Google Drive, conferencing with students, exercise, or meeting with colleagues. Some responses were: "We shortened the school day, which gave more professional time for my colleagues and me to work" and "More time for check in with kids." Teachers found a reduced amount of time teaching was a beneficial aspect of ERT.

The third theme, Working from Home, included responses in which expressed the benefits of working from home. These responses mentioned things like saving money, not having to commute, being home with kids, or spending time with family. Some sample responses were, "On a personal level, I appreciated being home to support my son through his remote learning experience and I liked being able to avoid the commute" and "the remote schedule was manageable for having time with family." Working from home provided many teachers with aspects they found beneficial over teaching in person.

The fourth theme, Self-Care, included responses that generally related to having more time and working from home, but also specifically mentioned aspects of their physical or mental health, or relationships and/or family. Some sample responses were: "I had a lot more control over my daily schedule. I could use breaks to exercise" and "I enjoyed the fact that I actually was able to spend time in my home and focus on my personal life for a while." Self-Care was an area that teachers felt like they now had the ability to focus on during ERT.

The final theme, Tech Competency, included responses relating to learning new technology, or new ways to use technology as a result of ERT. Sample responses were: "increased my awareness of how technology could be used" and "The Zoom chat option was beneficial as we were able to receive and provide private feedback. For math, students were able to chat their answers to a given problem without fear of others seeing they made a mistake."

Figure 4 describes the breakdown of teachers' responses and how they fell within the five themes identified.

Figure 4

Personal and Professional Benefits of Remote Learning
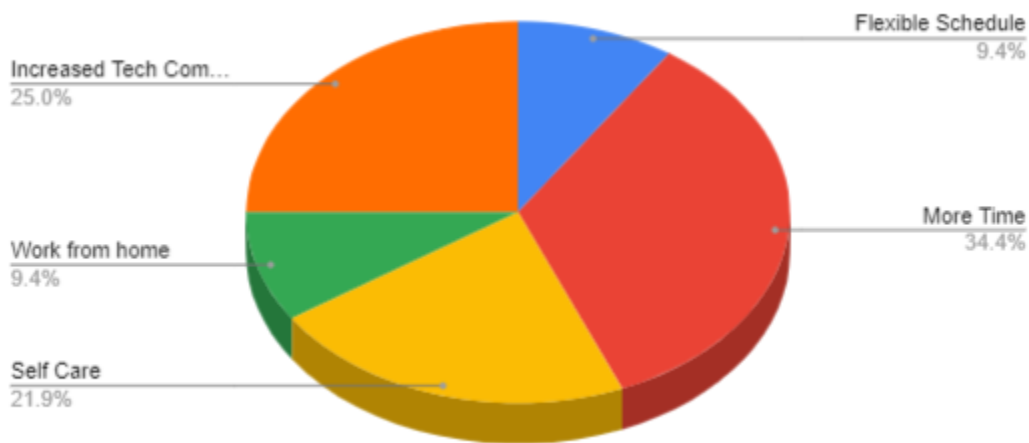
3. What were the negative aspects, both personally and professionally, of the remote teaching schedule?

Similar to the previous question, teachers were asked the question, "What were the negative aspects, both personally and professionally, of the remote teaching schedule?" The question was open ended and teachers were able to respond with unique

negative aspects of the remote teaching schedule. The responses were broken down into five themes: Relationships, Time, Communication, Accountability, and Content. It is important to note that there were responses that could fall into more than one category.

The first theme was Relationships. Responses that were included in this theme mentioned the difficulty of building relationships or lack of relationships with students or with colleagues. Sample responses included, "Didn't know the kids as well. Not requiring them to turn on a camera meant I didn't know them at the end of the year" and "I missed the daily interactions with colleagues and students - I didn't feel any "joy" from the students." Teachers felt relationships were lacking during ERT.

The next theme, Time, also appeared in beneficial aspects of ERT. But in this theme, teachers spoke to the lack of time, time spent working, or the little notice given by administrators that school would be remote. One response noted that: It was very stressful to have to wait on my district to make the official decision to teach remotely-- this was done very late in the summer which gave teachers very little time to prepare resources, learning activities, plans, and learn the most effective ways to carry out teaching and learning.

Another response stated that teachers had "less time to collaborate with colleagues," while another felt "I felt like I never stopped working, or being on the clock, since the technology and email were always right there." Teachers had mixed feelings around time in relation to ERT.

The next theme, Communication, also emerged in the teacher responses. Responses related to Communication included how we communicate or are unable to communicate remotely versus in person, as well as communications between teachers,

parents, and administrators. Sample responses include, "the loss of body language," and "inconsistent information/decisions from our Admin/low expectations for students." Communication was an area in which teachers felt negatively about during ERT.

The Accountability theme refers to responses that mentioned areas like assessment, cheating, or if kids were even present when they were logged into zoom (teachers could not require student cameras on, per administration). Sample responses related to Accountability included, "It was impossible to know if students were staying in the Zoom class while learning was occurring. It was difficult to reach all students and prevent cheating" and "student accountability of performing/delivering at a "high level." Accountability was a challenging aspect for teachers during ERT.

The final theme, Content, refers to either what was able to/not able to be covered during the year, engaging students in the content, or challenging students appropriately given the circumstances and resources provided. Sample responses included issues with "consistently challenging students academically" and another responded with, "We weren't able to cover as much material." Teachers found it difficult to cover all their content and challenge students academically during ERT.

Figure 5 describes the teachers' responses and their distribution by theme.

Figure 5

Negative Aspects Personally and Professionally During ERT
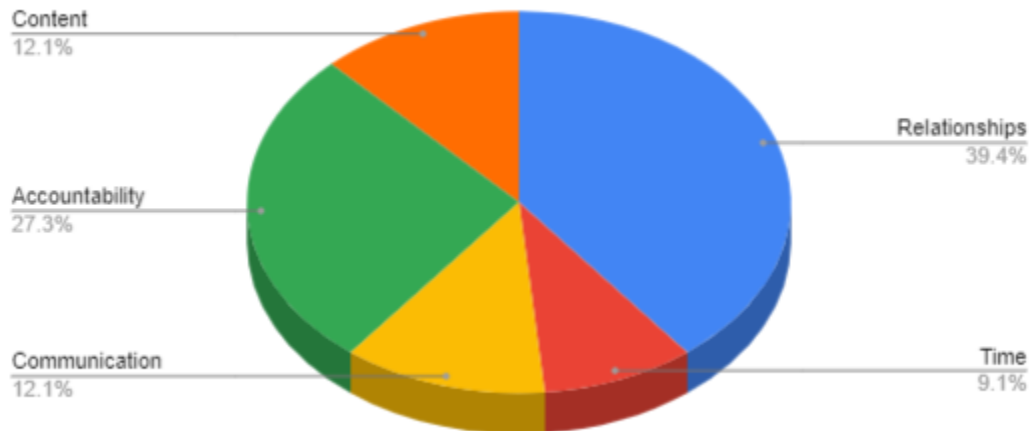
4. What new methods or strategies will you carry forward post-pandemic?

Teachers were given the option, based on their experience during ERT, to provide methods or strategies they found effective and they plan to carry forward post-pandemic. The responses were broken down into four themes, which are: New Resources, New Tech, Feedback and Conferencing, and Differentiation. It is important to note that some responses may fall into more than one category.

The New Resources theme included responses in which teachers created something new for use during ERT, but plan to continue using, even post-pandemic. Responses included a number of items teachers created including video lessons, new digital versions of activities and assignments, Pear Decks, and other resources for students. A sample response included a teacher that "[Created a] hyperdoc for units with all slide decks and formative assessments located in one document," making it easier for students to find necessary resources. Another teacher mentioned, "I replaced a number of

pencil/paper tasks with electronic versions. I also made a number of good alternative assessments." ERT was a time for creating new resources for students and teachers.

The New Tech theme included responses in which teachers found new ways to either increase productivity, efficiency, or improve student learning with technology. One teacher reduced their workload by learning a method for "Online grading of essays" to make grading more efficient. Another found grading to be more efficient and for feedback to be more meaningful to students by "Recording feedback instead of written feedback" for students. Teachers found technology could be leveraged to increase productivity during and after ERT.

The Feedback and Conferencing theme included responses in which teachers either found new ways to provide feedback or that just found conferencing individually with students beneficial during ERT and would like to carry those practices forward post-pandemic. Sample responses for this theme included, "I used polling quite a bit more. Also, students would email me a question, and I would respond with a video explanation, which most found useful," or some would like to carry forward "Frequent check-ins with students" post-pandemic. Another response was the implementation of "student self / peer assessment" to help students reflect about their learning. Feedback and conferencing emerged as an important aspect of ERT and teachers want to continue that practice post-pandemic.

The Differentiation theme included responses in which teachers found ways to differentiate learning through teaching strategies or incorporating student choice into their teaching. Additionally, some responses included leveraging schedule as a differentiation strategy. Sample responses for this theme were, "breaking students up by

letting them choose working styles" and "Online tutoring sessions" to support students outside of the traditional classroom time. In relation to time, one teacher stated a practice they wanted to carry forward was "more choice and control over how/when you learn . . . not needing to do everything at the same time with everyone."

These responses and correlating themes provide a glimpse into the beneficial aspects of ERT that teachers plan to carry forward post-pandemic. Figure 6 describes the distribution of responses related to each theme.

Figure 6

Aspects of ERT Teachers Plan to Carry Forward Post-Pandemic
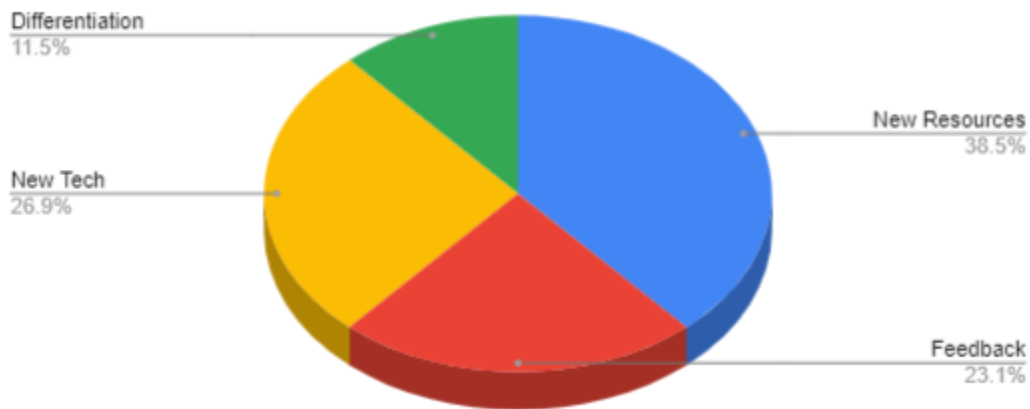
Research Question 2 (RQ2): *What type of schedules do teachers prefer?*

1. What subject do you teach?

Teachers were asked to identify their content area. They were given five areas to choose from which included: Math, Science, Social Studies, English, and Other Elective. Other Elective included areas, such as Physical Education, Career and Technical

Education, the Arts, and Foreign Language. Figure 7 describes the distribution of

teachers by content area.

Figure 7

Distribution of Teacher Participants by Content Area
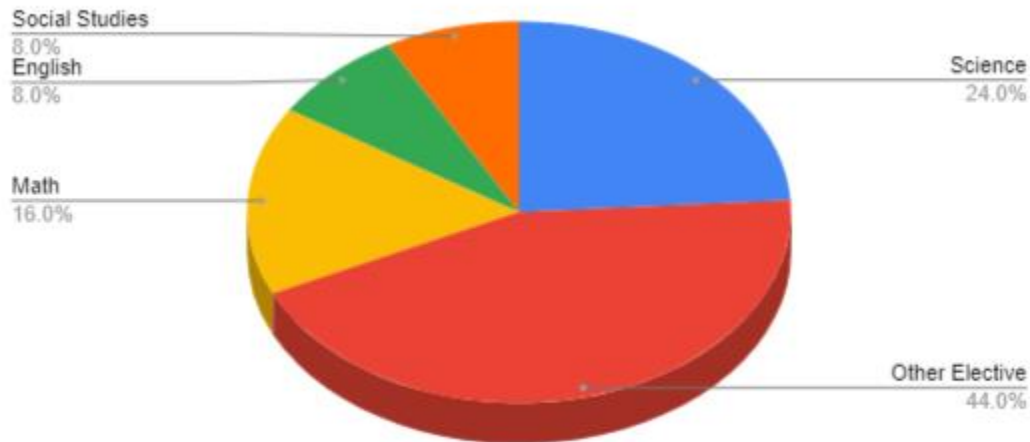
2. Do you prefer a traditional, hybrid, or remote learning environment for your classes?

Prior to COVID-19, teacher participants were teaching in a traditional schedule.

At the onset of the pandemic, all teachers were moved to ERT, which was fully remote.

As conditions changed, the schedule was adjusted multiple times. As a result, teacher

participants have experience with traditional, Hybrid, A/B Block, and fully remote

teaching schedules. Teachers were asked to identify which schedule they preferred. They

were given four choices, which included Traditional, Hybrid, Block, and Remote

Schedules. Figure 8 describes the distribution of teacher responses regarding preference

in schedule type. There were no responses in favor of a fully remote schedule.

Figure 8

Distribution of Teacher Schedule Preference

Block schedule (8 bl...
32.0%

Traditional schedule...
32.0%

Hybrid (mainly in per...
36.0%
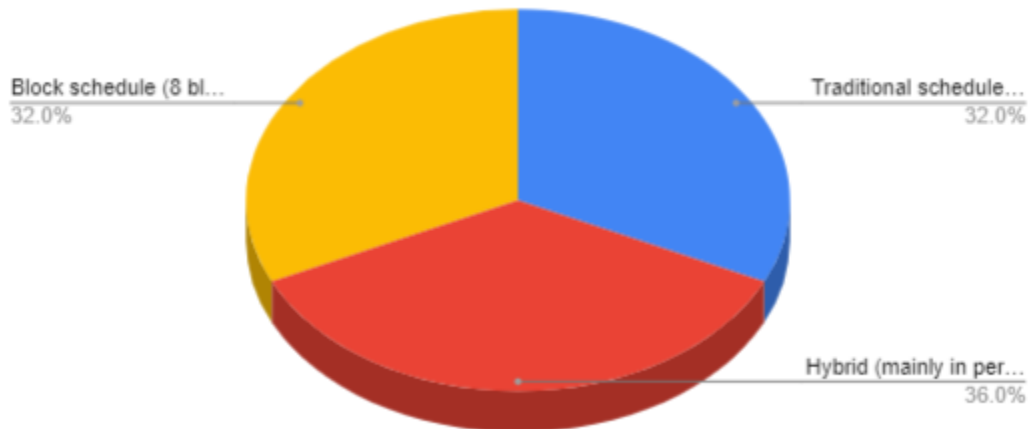
Teacher Hypotheses:

NH1: Teachers do not feel as though student learning during ERT was equivalent to prior

years.

Teachers were asked if they felt student learning was more, less, or similar to

prior years. The researcher ran a Chi-Square test to determine if there was a difference in

teacher feelings around student learning during ERT vs prior to ERT. If there were no

clear difference in teachers' feelings about student learning, the distribution of teachers'

responses would be approximately one third for each category. The analysis revealed

whether there was a significant difference in teacher feelings around student learning;

$\chi2(2, n = 25) = 15.69$, p <.001. The researcher rejected the null hypothesis and concluded

that there was significant difference in teacher feelings around student learning during

ERT versus prior to ERT.

Table 1

Chi Squared Goodness of Fit Table for Student Learning Levels

	More	Less	Similar	Total
Observed	1	17	7	25
Expected	8.33	8.33	8.33	
(E-O)^2/E	6.45	9.02	.21	

NH2: Teacher level of anxiety was independent of whether a teacher had previous experience teaching online or not.

The researcher ran a Chi-Square test of independence to determine if level of anxiety was dependent on prior online teaching experience. The analysis revealed the anxiety level for teachers was not dependent on prior online teaching experience; $\chi2(2, n = 25) = 1.06$, $p = .590$. The researcher failed to reject the null hypothesis and concluded that anxiety level was independent of prior online teaching experience.

Table 2

Contingency Table for Anxiety Levels vs Previous Online Teaching Experience

	Higher	Same	Lower	Total
With Prior Online Experience	1	2	0	3
Without Prior Online Experience	13	8	1	22
Totals	14	10	1	25

NH3: The proportions for male and female teachers reporting overall positive feelings around remote learning are the same.

The researcher conducted a two-sample test of proportions to determine if the proportions for male and female teachers reporting overall positive feelings around remote learning were different. The analysis revealed that the proportion of males reporting positive feelings around remote learning (n = 16, 50.0%) was not significantly different from that of female teachers (n = 9, 66.7%); z = .8, p = .419. The researcher failed to reject the null hypothesis and concluded that the proportions for male and female teachers reporting overall positive feelings around remote learning were the same.

NH4: There is no difference in preference around type of schedule for teachers.

Teachers were asked if they preferred one schedule type over others. Teachers could choose from one of four categories; Traditional, Hybrid, Block, and Remote schedules. The researcher ran a Chi-Square test to determine if there was a difference in teacher preference around schedule type. If there were no clear preference in schedule, the distributions of teacher choices among the four categories would be approximately one fourth. The analysis revealed there was a significant difference in teacher preferences around schedule type; $\chi^2(3, n = 25) = 8.44$, p = .038. The researcher rejected the null hypothesis and concluded that there was a significant difference in teacher preference around schedules.

Table 3

Chi Squared Goodness of Fit Table for Schedule Preference for Teachers

	Trad	Hybrid	Block	Remote	Total
Observed	8	9	8	0	25
Expected	6.25	6.25	6.25	6.25	
(E-O)^2/E	.49	1.21	.49	6.25	

Student Research Questions

Research Question 3 (RQ3): *How did learning change during Emergency Remote Learning?*

1. Do you feel like you learned as much during ERT compared to in-person learning prior to ERT?

Students were asked to compare their learning during ERT to their experience learning prior to ERT. Students were asked to select one of three responses: "I learned more," "I learned less," or "I learned at a similar level." Figure 9 describes the distribution of student responses.

Figure 9

Student Learning During ERT Compared With In-Person Learning
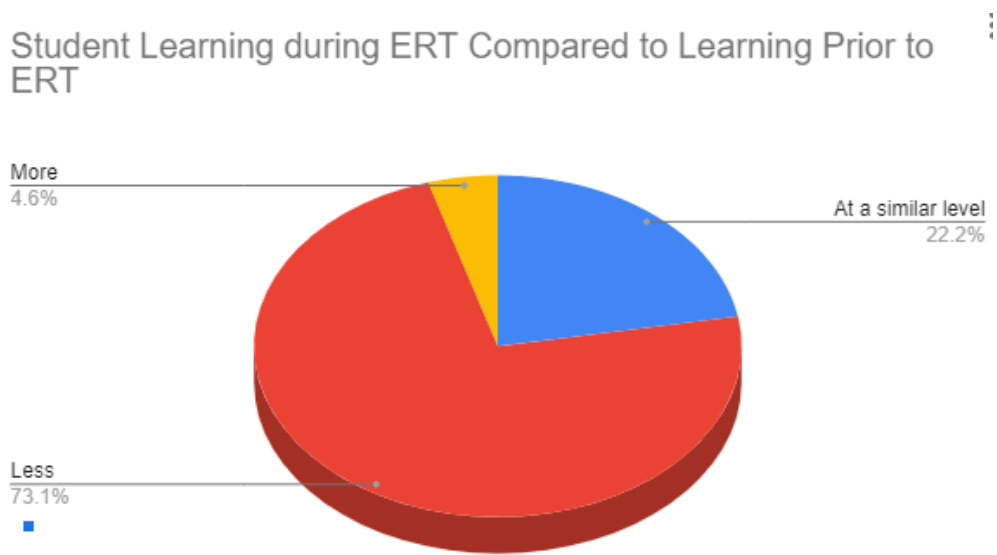
Figure 10 breaks the distribution of student learning during ERT compared with in-person learning down by gender.

Figure 10

Learning During ERT Compared to In-Person Learning Prior to ERT by Gender
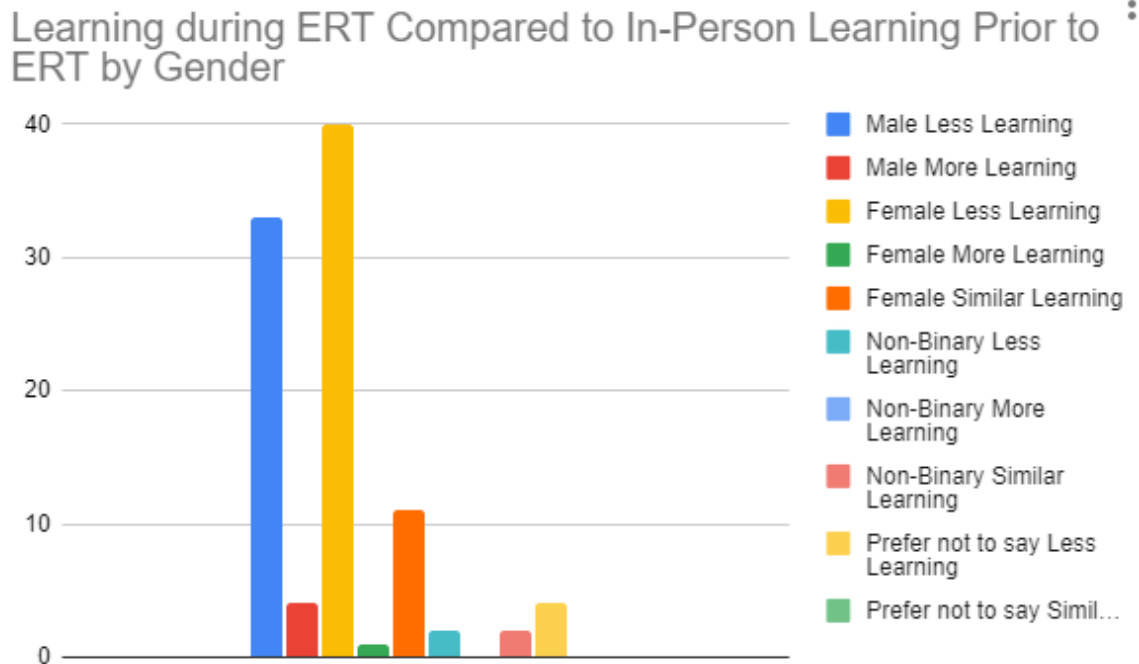
2. Are there any learning strategies or new methods you learned during remote learning
    that you will carry forward post-pandemic?

    Moving from a traditional schedule to ERT is a drastic shift for students. Students
were asked to identify what adjustments they had to make and if they learned or
implemented any new strategies during ERT that they intend to carry forward post-
pandemic. The question was open ended to capture unique responses from students.
Student responses were categorized into themes that emerged, including Time
Management, Habits/Organization, Self-Reliance, and No New Strategies. Some
responses fell into more than one category.

    The first theme, Time Management, included responses from students that
mention students discovering how to set a regular schedule for themselves, including
time for classes, homework, and breaks. Sample responses from this theme include, "I

better understand the importance of taking time for myself and having flexibility and time

management" and "I learned better how to format learning in a schedule that worked for

me." Students plan to carry forward time management strategies, post-pandemic.

The second theme, Habits/Organization, included responses related to students

identifying habits that help their learning, or help them organize themselves for efficiency

or ease of learning. Responses included areas like creating a suitable work environment,

using or creating a system to organize and prioritize work/assignments, habits to improve

focus like music or exercise, or learning to take better notes. Sample responses from this

them were, "I found that periodic exercising helps keep my focus during long tasks" or "I

got better at managing my work, and I still use my planning strategy from remote

learning post-pandemic." Students felt that developing creating healthy habits and

becoming more organized was an important strategy for learning.

The third theme, Self-Reliance, included responses in which students expressed

taking ownership of their learning and being able to advocate for themselves, such as

learning to better communicate with teachers, or asking for help sooner rather than later.

Sample responses were, "I have also learned that it is very important to seek help when

you need it, not let it come to you. This is a phrase I stick to, even today" and "I learned

how to figure things out by myself and ask for friends for help as opposed to teachers."

Students identified self-reliance as something they want to continue with post-pandemic.

The final theme, No New Strategies, is simply students who stated they did not

learn any new strategies for learning during ERT. Figure 11 describes the distribution of

responses within each theme that students would like to carry forward post-pandemic.

Figure 11

Strategies for Learning Students Intend to Carry Forward Post-Pandemic

1. What classes did you find the most challenging via remote learning?

Students were asked if there were some subjects that were more difficult than others while learning remotely. The students were given the choices of Math, Science, Social Studies, English, and Electives. They were asked to select two of the classes they felt were the hardest during remote learning. Figure 12 describes the distribution of student responses.

Figure 12

Challenging Subjects for Students During ERT
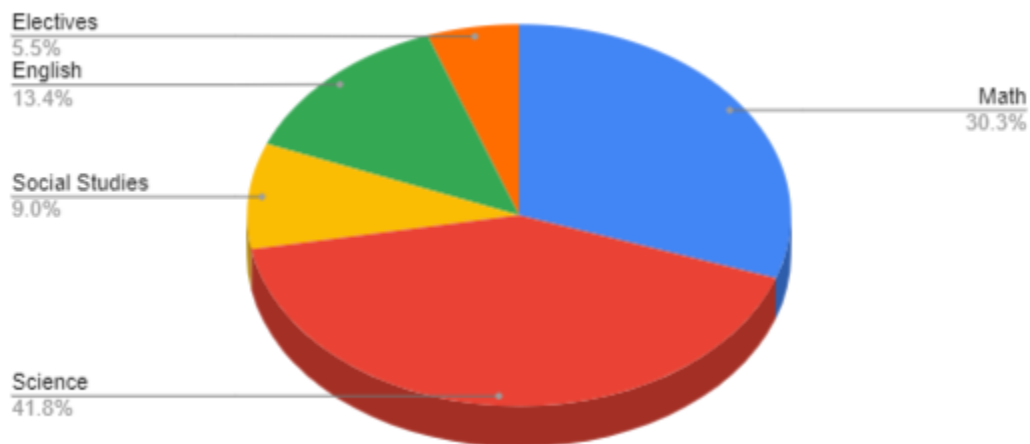
Research Question 4 (RQ4): *What type of schedule do students prefer?*

2. Are there classes you would prefer to take remotely?

      Students were asked if they preferred to take any classes remotely versus in person. Students could choose from the following responses: Math, Science, Social Studies, English, and Elective courses and were asked to select all that apply. Students were not required to provide a response, assuming they might not want or prefer to take any classes remotely. Figure 13 describes the distribution of student responses, including how many chose not to select any subjects they prefer to take remotely.

Figure 13

Classes Students Would Prefer to Take Remotely
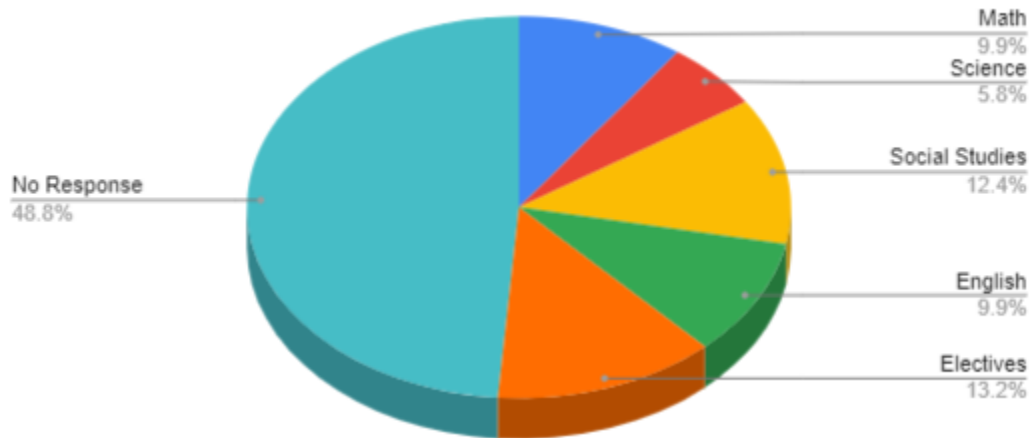
3. What type of schedule do you prefer?

Students were given four choices of schedule types, all of which they had

experience with, and were asked to choose their preferred schedule type. The available

responses were Traditional, Hybrid, Block, and Virtual schedules. Traditional was eight,

45-minute periods each day. Hybrid was a mix of online and in-person learning. Block

was in person A/B Block schedule, where students take half of their courses on A-day

and the other half on B-days. A and B days would alternate. Finally, the Virtual schedule

was fully remote with no in-person classes. Figure 14 describes the distribution of student

responses.

Figure 14

Distribution of Student Schedule Preference
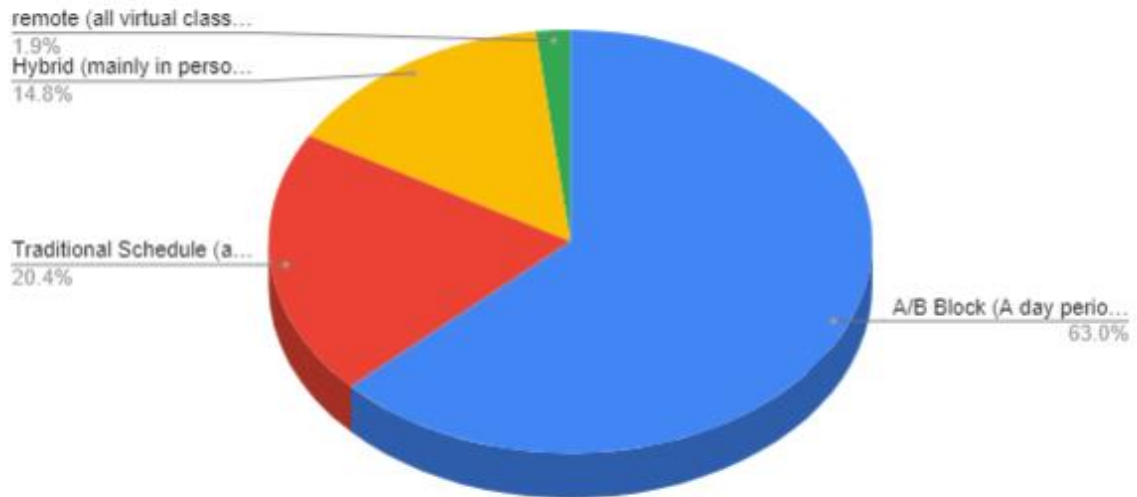
Student Null Hypotheses:

NH5: Students feel as though learning online was equivalent to prior years.

Students were asked if they felt their learning during ERT was more, less, or the same as years prior to ERT. If there were no clear preference, the distribution between student responses between less, more, or the same would be approximately one third. The researcher ran a Chi Square test to determine if there was a difference in student feelings around learning during ERT versus prior to ERT. The analysis revealed there was a significant difference in student feelings around learning; $\chi2(2, n = 108) = 82.06$, $p < .001$. The researcher rejected the null hypothesis and concluded that there was significant difference in student feelings around learning during ERT versus prior to ERT.

Table 4

Chi Squared Goodness of Fit Table for Student Learning Levels

	More	Less	Similar	Total
Observed	5	79	24	108
Expected	36	36	36	
(E-O)^2/E	26.69	51.36	4	

NH6: The proportions are the same for upperclassmen (11th & 12th graders) and lower

classmen (9th & 10th graders) reporting overall positive feelings around remote learning.

The researcher conducted a two-sample test for difference in proportions to

determine if the proportions for upper classmen (11th & 12th graders) and lower

classmen (ninth and 10th graders) reporting overall positive feelings around remote

learning were different. The analysis revealed that the proportion of upper classmen

reporting positive feelings around remote learning (n = 49, 41.7%) was not significantly

different from that of lower classmen (n = 58, 32.8%); z = -.95, p = .344. The researcher

failed to reject the null hypothesis and concluded that the proportions for upper classmen

and lower classmen reporting overall positive feelings around remote learning were the

same.

NH7: The proportions are the same for male and female students reporting overall

positive feelings around remote learning.

The researcher conducted a two-sample test for difference in proportions to

determine if the proportions of male and female students reporting overall positive

feelings around remote learning were different. The analysis revealed that the proportion

of males reporting positive feelings around remote learning (n = 48, 37.5%) was not

significantly different from that of female students (n = 52, 36.5%); $z = .1$, $p = .918$. The

researcher failed to reject the null hypothesis and concluded that the proportions for male

and female students reporting overall positive feelings around remote learning were the

same.

NH8: Students do not have a preference as to the subject of the classes they take online.

Students were asked if they preferred to take a particular subject online. Students

selected from Math, Science, English, Social Studies, and Electives. The researcher ran a

Chi-Square test to determine if there was a difference in student preference for courses

being taught online. If there was not a clear difference in choice, the distribution of

student responses across categories would be approximately one fifth. The analysis

revealed there was not a significant difference in student feelings around which courses

they preferred to take online; $\chi2(4, n = 69) = 4.99$, $p = .289$. The researcher failed to

reject the null hypothesis and concluded that there was not a significant difference in

student feelings around which courses they preferred to take online.

Table 5

Chi Squared Goodness of Fit Table for Online Course Preference for All Students

	Math	Science	Social Studies	English	Elective	Total
Observed	14	7	16	14	18	69
Expected	13.8	13.8	13.8	13.8	13.8	
(E-O)^2/E	.003	3.351	.351	.003	1.278	

NH9: Students do not find certain classes more challenging than others via remote

learning.

Students were asked which subject they felt was the most challenging during

ERT. Students selected from Math, Science, English, Social Studies, and Electives. The

researcher ran a Chi-Square test to determine if there was a difference in student opinion

on which courses were the most challenging during ERT. If there was not a clear

difference in choice, the distribution of student responses across categories would be

approximately one fifth. The analysis revealed there was a significant difference in

student feelings around which courses were challenging online; $\chi2(4, n = 155) = 103.68$,

$p <.001$. The researcher rejected the null hypothesis and concluded that there was a

significant difference in student feelings around which courses were challenging online.

Table 6

Chi Squared Goodness of Fit Table Courses Students Found Challenging Online

	Math	Science	Social Studies	English	Elective	Total
Observed	63	56	11	13	2	155
Expected	31	31	31	31	31	
(E-O)^2/E	.003	3.351	.351	.003	1.278	

NH10: Students did not learn more in a particular subject than others.

Students were asked if they felt like they learned more in a particular subject over

others. Students selected from Math, Science, English, Social Studies, and Electives. The

researcher ran a Chi-Square test to determine if there was a difference in courses students

felt they learned more in. If there was not a clear difference in choice, the distribution of

student responses across categories would be approximately one fifth. The analysis

revealed that whether there was a significant difference in student feelings around which

courses they learned more in; $\chi2(4, n = 93) = 8.14$, $p = .086$. The researcher failed to

reject the null hypothesis and concluded that there was not a significant difference in

student feelings around courses they learned more in online.

Table 7

Chi Squared Goodness of Fit Table Courses Students Felt They Learned More Online

	Math	Science	Social Studies	English	Elective	Total
Observed	21	11	22	18	21	93
Expected	23.25	23.25	23.25	23.25	23.25	
(E-O)^2/E	.218	6.454	.067	1.185	.218	

NH11: Students did not find any aspects of remote learning more challenging than

others.

Students were asked what aspects of remote learning were the most difficult.

Students could select from Homework, Getting the Help I Needed, Time Management,

Organization, Focus, Social Emotional Health, and Other. If there was not a clear

difference in choice, the distribution of student responses across categories would be

approximately one seventh. The researcher ran a Chi-Square test to determine if there

was a difference in aspects of online learning students felt were challenging. The analysis

revealed that whether or not there was a significant difference in student feelings around

which aspects of online learning students found challenging; $\chi2(6, n = 315) = 63.02$,

$p<.001$. The researcher rejected the null hypothesis and concluded that there was a

significant difference in student feelings around what aspects of online learning students

found challenging. Figure 15 further describes the distribution of student responses

around challenging aspects of ERT.

Table 8

Chi Squared Goodness of Fit Table Most Challenging Aspects of Online Learning

	Homework	Getting Help	Time Mgmnt	Organization	Focus	SEH	Other	Total
Observed	42	46	54	35	77	55	6	315
Expected	45	45	45	45	45	45	45	
(E-O)^2/E	.200	.022	1.8	2.222	22.756	2.222	33.8	

Figure 15

Aspects of Learning Students Found Challenging

Students were given 7 aspects of online learning and asked to choose what was difficult for them. Figure 15 describes the distribution of responses about the most challenging aspects of online learning.
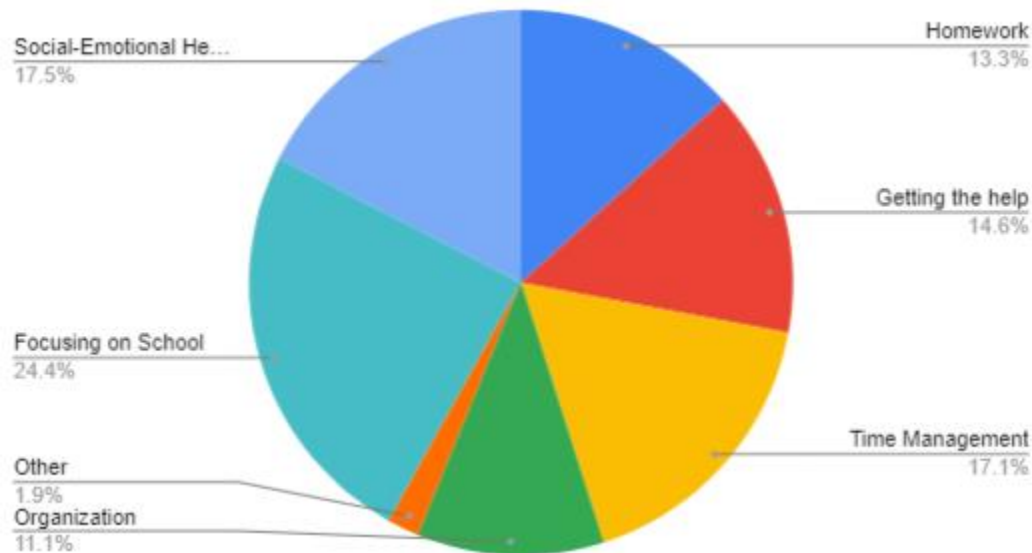
NH12: Students did not find any aspects of remote learning more beneficial than others.

Students were asked what aspects of remote learning were beneficial. Students could select from Flexibility, Pacing, Building Time Management Skills, Teacher Office Hours, Online Resources, and Video Lessons. If there was not a clear difference in choice, the distribution of student responses across categories would be approximately one sixth. The researcher ran a Chi Square test to determine if there was a difference in aspects of online learning students felt were beneficial. The analysis revealed whether or not there was a significant difference in student feelings around which aspects of online learning students found beneficial; $\chi2(6, n = 191) = 127.01, p <.001$. The researcher

rejected the null hypothesis and concluded that there was a significant difference in student feelings around what aspects of online learning students found beneficial.

Table 9

Chi Squared Goodness of Fit Table Beneficial Aspects of Online Learning

	Flexibility	Pacing	Time Mgmnt	Office hours	Online Resources	Video Lessons	Total
Observed	85	42	14	25	13	12	191
Expected	31.83	31.83	31.83	31.83	31.83	31.83	
(E-O)^2/E	88.82	3.24	9.99	1.47	11.13	12.35	

Figure 16

Aspects of Online Learning Students Found Beneficial
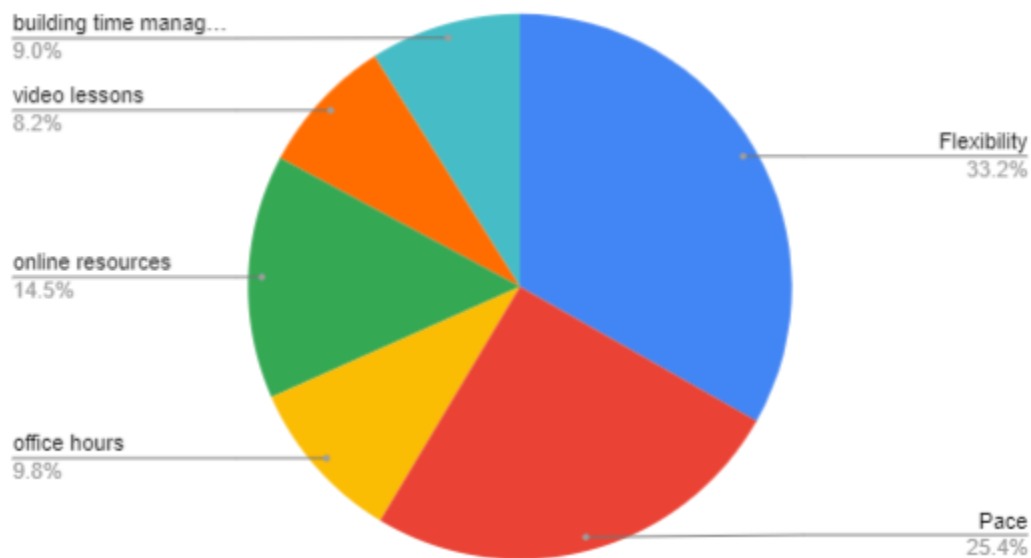
Students were given six beneficial aspects of online learning and asked to select which ones pertained to them. Figure 16 shows the distribution of responses students provided for beneficial aspects of online learning.

NH13: Students show no preference regarding type of schedule.

Students were asked what their preference in schedule type was. Students selected from Traditional, Hybrid, Block, or Remote schedules. If there was not a clear difference in choice, the distribution of student responses across categories would be approximately one fourth. The researcher ran a Chi Square test to determine if there was a difference in student preference around schedule type. The analysis revealed whether or not there was a significant difference in student preferences around schedule type; $\chi2(3, n = 108) = 90.81, p < .001$. The researcher rejected the null hypothesis and concluded that there was a significant difference in student preference around schedules.

Table 10

Chi Squared Goodness of Fit Table for Schedule Preference for all Students

	Trad	Hybrid	Block	Remote	Total
Observed	22	16	68	2	108
Expected	27	27	27	27	
(E-O)^2/E	.926	4.481	62.259	23.148	

NH14: Schedule preference is independent of gender.

The researcher ran a Chi Square test of independence to determine if students' schedule preference was dependent on gender. The analysis revealed whether or not a student's preference of schedule was dependent on gender; $\chi2(6, n = 104) = 4.18, p = .652$. The researcher failed to reject the null hypothesis and concluded that students' schedule preference was independent of gender

Table 11

Contingency Table Schedule Preference by Gender

	Trad	Hybrid	Block	Remote	Total
Male	12	5	29	0	48
Female	9	10	33	2	52
Non-Binary	0	0	4	0	4
Totals	21	15	66	2	104

NH15: Schedule preference is independent of grade level.

The researcher ran a Chi Square test of independence to determine if students' schedule preference of a ban was dependent on grade level. The analysis revealed that whether a student's preference of schedule was dependent on grade level; $\chi2(9, n = 108) = 22.58, p=.007.$ The researcher rejected the null hypothesis and concluded that the student's schedule preference was dependent on grade level.

Table 12

Contingency Table Schedule Preference by Grade Level

	Trad	Hybrid	Block	Remote	Total
9th grade	8	1	13	2	24
10th grade	2	7	26	0	35
11th grade	2	3	16	0	21
12th grade	10	5	13	0	28
Totals	22	16	68	2	108

Summary

Chapter Four reported the statistical analysis related to four research questions, along with their supplemental instrument questions, and tested 15 hypotheses. Chapter Five discusses the findings as a result of the data reported out in Chapter Four.

Chapter Five: Discussion

Introduction

      The purpose of this mixed methods study was to learn from the experiences of

students and teachers as they navigated COVID-19. The students and teachers who

participated in this study were forced to significantly alter their learning and teaching

over the course of the pandemic. Students were forced to become more independent and

discover what worked for them to continue their learning during ERT. Similarly, teachers

navigated uncharted territory as they quickly learned to teach on an online platform. As

the pandemic progressed, additional change occurred with various schedule types. The

goal of the study was to learn from the experiences of teachers and students to learn what

aspects of ERT they will carry forward and what schedule types students and teachers

found most beneficial. To achieve this goal, the researcher surveyed students and teachers

to answer the following questions:

RQ1: How did teaching change during Emergency Remote Learning?

RQ2: What type of schedules do teachers prefer?

RQ3: How did learning change during Emergency Remote Learning?

RQ4: What type of schedules do students prefer?

Summary of Key Findings

      ERT was a time of learning and creation for teachers. Teachers were forced to

learn and utilize new technologies in a very short time span. This was stressful for

teachers, but many saw how these technologies could be leveraged and began to create

new digital materials they could use in the ERT environment, as well as in-person

learning environment post-pandemic. Additional benefits included additional time to work on content creation, self-care, or spend time with family, thus reducing stress.

Teachers also reported negative aspects of ERT, as they felt overall students learned less during ERT than during in-person learning. Relationships and student accountability also emerged as concerns for teachers, as they struggled to connect with students and effectively monitor tests and other assessments. When looking at other challenging aspects of ERT, all teachers experienced challenges, but it appears that teachers all had a unique experience based on their content, students, and personal life, etc., based on their ranking of challenging aspects.

The distribution of schedule preferences for teachers were fairly even with hybrid having slightly more preference. This implies that different content areas have different needs and therefore there is not a schedule that meets everyone's needs. However, with the hybrid schedule having a slightly higher preference than block and traditional schedule, this implies that teachers enjoyed some of the flexibility and freedom that came with teaching online and acknowledges that there are aspects of many classes that could be taught successfully online, while having the in-person experience to build relationships and ensure student accountability.

Students reported a much more negative experience during ERT. The majority of students felt that they learned less during ERT than during in-person learning prior to COVID-19. Focusing on school, social-emotional health, building relationships, and time management all emerged as themes during ERT that contributed to less learning.

Some students reported adapting to the new way of learning by developing systems for organization and strategies for time management that helped them to be more

productive. Those students plan to carry those systems forward. Additionally, some

students learned to take more ownership of their learning by utilizing additional learning

resources, either provided by the teacher or found online, to support their learning, as

teachers were less accessible.

Due to the overall negative experience learning online, students tended to shy

away from any schedule with an online component. Students favored the A/B block

schedule presumably, because it allowed them to focus on only four classes per day and

gives an additional day to work on that homework.

Interpretation of the Findings

Research Question 1 (RQ1): How did teaching change during Emergency Remote

Learning?

Analysis of the teacher responses indicates that while COVID-19 was a

challenging time for most and a significant disruption to learning, not everything about

the experience was negative. In looking to answer this research question, several positive

and negative aspects came through in the survey data. One positive is that is seems that

ERT was a time of learning and creation for most teachers. The qualitative responses

reveal that many teachers were unfamiliar with some of the technology that was

implemented. This led to many teachers learning new ways to deliver content or engage

with students. Some teachers simply learned how to run class on a virtual platform like

Zoom or Google Meet, but others learned new technology, like Pear Deck, Screencastify,

and video editing software. This stems from PD that the district offered, as well as

individual teachers finding and learning new technologies for their classroom on their

own. Teachers stated that they used their extra time to create new digital resources that

could be used post-pandemic, such as video recorded lessons, hyperdocs, and alternative assessments. When examining what teachers stated they want to carry forward, 38% indicate they will be continuing to utilize their new resources, and 26.9% will incorporate the new technology they have learned post-pandemic. There were concerns expressed over the short timespan in which teachers had to learn these technologies, but once they surpassed the initial learning curve, teachers were able to implement the technology into the classroom and now had a new tool or skill to use moving forward. The teachers that participated in this study were asked about positive aspects of ERT; 25% stated that their improved competency with technology was a positive benefit. Similarly, the analysis reveals that teachers have the capacity to adapt their teaching to the needs of their students. This affirms however, that even with the newly learned technologies, teachers felt that student learning online versus in person was not the same. The quantitative data from H1, $p=<.001$, indicated that teachers felt like student learning during ERT was less than in previous years. These results reinforce Rehayu and Wirza's (2020) findings that overall, teachers found the new technologies to be useful and helpful, but that even with the new technologies, learning was not as effective using the online platform (p. 403).

Another aspect of online learning that came to light in the data centered on relationships. Qualitative results indicated that teachers felt like relationships were lacking, due to the impersonal nature of online coursework. Teachers recognized this shift in student learning and relationships and saw the need to connect with students one on one to ensure students were getting the support needed to be successful. When asked what strategies teachers found effective, 43% of teachers listed individual check-ins with students as their top strategy that worked. Out of the remaining teachers, 54% listed

individual check-ins as their second choice. This implies that teaching online makes the learning experience less personal and more difficult for teachers to grasp how students are doing or feeling during class – particularly in this school's situation where kids were not required to turn their cameras on during ERT. Teachers highlighted this in their qualitative responses in relation to negative aspects of ERT, with 38% stating forming relationships with students as a challenge. This difficulty in establishing relationships can have an impact on student learning, as teachers are unable to read body language, adequately monitor student engagement, and potentially prevent students from feeling comfortable enough to ask for help. Teachers recognized the importance of relationships and made the effort to connect with kids individually and see how they felt about the content, or even to check in on students' mental health. The teachers that implemented individual check-ins found them to be effective. The second most frequent strategy chosen was similar, which was providing students with regular feedback, ahead of providing additional resources, recorded lessons, online discussions, and flipping the classroom.

Some teachers found additional positive aspects of ERT in their personal lives. According to the survey, 34.4% of teachers stated they had more time to engage with their families, take up a hobby, or for free time. This also led to an increase in self-care as reported by 21.9% of teachers. This implies that if teachers are given additional time, many will use that time to improve their physical or mental health. It could also imply that just giving the extra time and flexibility in schedule can also reduce stress, which in turn could improve mental health.

There were also negative aspects related to teaching during ERT as well. Teachers, when asked on the survey, which aspects of teaching were the most challenging, there was not a clear answer as to what aspect was the most challenging. The teachers were given seven choices which were: Teaching Strategies, Classroom Management, Lesson Planning, Finding Appropriate Resources, Relationship Building, Group Work, and Other. Teaching Strategies and Finding Appropriate Resources emerged as the top two choices at 22% and 26% of teachers selecting as their first choice respectively. The rest of the selections for choices 2 through 7 vary showing that different teachers, teaching different content areas, struggled with different aspects of teaching during ERT. An example might be a Physical Education teacher might struggle to find digital activities related to their class, whereas a Spanish teacher might struggle with classroom management. When looking at the challenging aspects of ERT, each teacher had a unique experience and ordered challenging aspects differently. Similarly, Hypothesis 3 ($p=.419$) found there was no significant difference in positive or negative feelings around ERT across male and female teachers. This also speaks to the fact that neither gender spoke out more positively or negatively about their experience with ERT. Each teacher had a unique set of challenges, both personal and professional, in transitioning to ERT.

A few additional negative aspects also emerged for teachers. Relationships with students was mentioned early and as noted, some teachers took steps to build relationships and check in with students one on one. But with primarily virtual communication and unable to see their students, many teachers did not even know what their students looked like. They were unable to read body language or facial expressions

to get a sense of what the student was feeling. Teachers taught to a black screen with the student's name displayed. That led to 38% of teachers stating relationships were a negative aspect of ERT. Bergdahl and Nouri (2020) received similar responses from teachers regarding relationships and working with students online, saying teaching online made it "more challenging to identify students that need support" and noting that some students behaved differently (level of engagement, interest, etc.) when learning virtually versus in person (Bergdahl & Nouri, 2020. p. 455). Combining all the data collected from teachers, it is clear that teachers value relationships with their students and leverage those relationships to foster learning. ERT made that aspect much more difficult for teachers to cultivate.

Student accountability also became a concern for many teachers. Students were now, for the most part, unsupervised, and could use other devices to look up answers to assessments or homework without anyone knowing. There was no way to monitor students taking tests or prevent collaboration/cheating with other students. Approximately 27% of teachers expressed accountability as a negative aspect of ERT. The concern of student accountability is not new. Almosa (2002) also describes cheating as a prevalent concern for education during online learning (pp. 393-394).

Finally, in examining Hypothesis 2 ($p=.590$), teacher anxiety related to ERT was measured to see if there was a relationship between anxiety and prior online teaching experience and also between anxiety and teacher gender. Anxiety in teachers with prior online teaching experience was found to be not significantly different than those without prior online teaching experience. Regardless of whether a teacher had taught online before, teachers still had to adapt their in-person content to be taught online. The only

real difference between those with or without online teaching experience would be

having prior experience with Zoom or other conferencing software.

Teaching changed significantly during ERT. Technology allowed education to

continue, but required teachers to quickly learn and adapt their teaching to be able to

teach from that platform. The newly learned technology and reduced teaching time

allowed new learning and creation of new resources for students. Additionally, teachers

now have new technological tools and skills they plan to carry forward post-pandemic.

Relationships with students were hard to form and student accountability became an

issue. There were positive aspects of ERT, but it seems ERT proposed a unique set of

challenges related to teaching for each teacher.

Research Question 2 (RQ2): What type of schedules do teachers prefer?

The analysis of the quantitative results in Hypothesis 4 ($p=<.001$) indicates that

there is a significant difference in teacher preferences around schedule. Even though

there were positive aspects of remote teaching, not one teacher opted to teach in that

environment under normal circumstances showing the difficulty that teachers

encountered and some of the limitations of online learning during the shift to ERT.

However, the distribution of teacher schedule preference across traditional, hybrid, or

block schedules were for the most part evenly distributed indicating that relatively equal

percentages of teachers prefer each type. The distributions were 32% for Block

Scheduling, 32% for Traditional schedule, and 36% for a hybrid schedule. This could

mean that certain schedule types are better for different content areas, or that teachers just

prefer one over the others because that is what they are used to, or more optimal for the

way they run their class or the activities within the class such as labs or projects.

An interesting finding emerged with the number of teachers opting for Hybrid. In the Hybrid schedule, students would have in-person learning for most of the time, and virtual for a small portion. An example would be four days in-person schooling and one virtual day. Lieberman (2020) reports on different styles of hybrid schedules that incorporate both a remote and an in-person component. He describes benefits, such as leveraging technology and convenience. In addition, the hybrid schedule required teachers to be more strategic in their planning doing presentations and hands on activities while the students were in person, and assign supporting activities during the online or asynchronous portion of class (Lieberman, 2020 paras 1-40). The fact that 36% chose the hybrid option in the survey indicates that teachers did value some of the positive aspects of teaching online, such as the flexibility of schedule, not having to commute, working from home, etc., and acknowledge that some portions of their class could be effectively taught remotely.

Research Question 3 (RQ3): How did learning change during Emergency Remote Learning?

Analysis of the qualitative and quantitative data from the survey shows that learning did change during ERT. Just as teachers had to quickly adapt their teaching, students also had to quickly learn to adapt to a new way of learning from home. The researcher aimed to discover the challenges, as well as what students learned about themselves during ERT.

In evaluating students' experiences during ERT, the data leans much more negative of an experience than that of teachers. Examining overall student experience, 64% of students described ERT as a negative experience. Interestingly, the distributions

of positive to negative across genders is almost identical to the overall student experience with 62.5% of females, 63.5% of males, 50% of non-binary, and all of students preferring not to say gender stating an overall negative experience. Analysis of Hypothesis 7 ($p=.918$) found there is no difference in proportions from male to female students regarding feelings about ERT. Furthermore, examining how students felt across grade levels, analysis of Hypothesis 6 ($p=.344$) found there is no difference in upper classmen versus lower classmen reporting overall feelings. This shows that overall, across gender and grade levels, most students had an overall negative experience. There are probably multiple reasons for this but one possibility, as Hypothesis 5 ($p=<.001$) shows, is that overall students felt like they learned less during ERT than during in-person learning. This correlates directly with what teachers had to say in regard to student learning, as well as a recent study by Kuhfeld et al. (2022). The study looked at test scores before and after the pandemic and found a sizable drop in scores (Kuhfeld et al., 2020, paras. 3-5). Another reason could be due to the challenges that students faced during ERT, which the researcher explored in Hypothesis 11 ($p=<.001$). The most common challenge, with 24% of student responding, was focusing on school. This supports the findings in Hypothesis 5 ($p=<.001$) by associating an inability to focus on school with a lack of engagement, and therefore less learning.

The next challenge, with 17.5% of students responding was social-emotional health. With students isolated at home, not being able to interact with their peers or teachers in person, in addition to the negative impacts of COVID-19, one could understand that students might feel lonely, isolated, or depressed given the situation. This supports teachers' responses to building relationships with students, as many students

were struggling with social-emotional issues as a result of ERT. The next three

challenges: Time Management (17%), Getting the help needed (15%), and Homework

(13%) were related. If students cannot manage their time, then homework would be an

issue or add stress, as they fall behind in their work. Additionally, if students feel help is

not accessible, then homework and relationships with teachers would suffer and add a

layer of stress for students.

There were some positive aspects of ERT for students. Students were asked about

new learning strategies or methods they learned during ERT that they plan to carry

forward. Students' answers fell into categories labeled: Time Management,

Habits/Organization, Self-Reliance, and No New Strategies. The top two strategies

mentioned by students were Habits/Organization, and Time Management, respectfully.

Students were now fully responsible for their learning with no teacher physically present

to give reminders or nudge them to stay on task. The responsibility was now solely on the

student to make sure they managed themselves and their time. In order to be successful,

students found they needed an organization system to remind them of when things were

due, what they needed, and schedule time to work on these items. With the additional

time that students had, they found that part of succeeding is managing time. At school

there were bells that signified when to go to your next class and students get accustomed

to that schedule. Now at home, they had to wake up on time, login to classes on time, set

aside time for homework or teacher office hours, etc. Students had to manage their

schedule without prompts to transition. This can be difficult for students – as mentioned

earlier - especially with easily accessible distractions like phones, TV, internet, video

games, and social media in combination with a lack of accountability. Parents might be at

work and no one physically present to keep students on task. Some students recognized

this issue and learned to create their own schedules that maximized their productivity.

Time management also emerged as a challenging aspect of ERT indicating that

some students found ways to manage their time and others did not. Examples that

students gave related to time management were: making time for breaks to exercise, go

on walks, or snack, which they found helped them to focus. Others mentioned times of

day in which they found themselves more productive, so would schedule homework

during that time. Still others mentioned learning to prioritize what needed to be done first

and working on that. Some students were able to adapt and learned or developed systems

to stay organized and manage their time differently during ERT than during in-person

learning. These findings support Schaefer et al's (2020) research which indicated students

felt learning to manage their time, including developing a set schedule for themselves,

and creating their own workspace aided students in their success during ERT (pp. 9-12).

Another positive aspect of ERT for many students was how they learned to be

more self-reliant in their learning. Teachers were not as easily accessible for questions,

which led to students looking for answers or additional information on their own. The

analysis of Hypothesis 12 ($p=<.001$) shows that students found using online resources,

whether found online or provided by the teacher, to be beneficial in their learning.

Overall, it seems that students struggled during ERT and felt like they learned

less. They reported having trouble focusing on school and getting the help they needed.

Some students were able to adapt by developing systems to organize and prioritize.

Others were able to recognize and develop time management strategies. Still others felt

that time management was difficult for them. Social emotional health and forming

relationships also emerged as a difficulty for students, as they were forced to work in isolation. When compared to teachers' responses, student responses painted a much more negative experience during ERT than teachers.

Research Question 4 (RQ4): What type of schedule do students prefer?

The analysis of the quantitative data provided answers as to what type of schedule students prefer. Additional hypotheses related to schedule were tested as well, to provide additional information. Student responses to the survey shows that students do indeed have a preference of schedule type. After testing Hypothesis 13 ($p<=.001$), it showed that students prefer a block schedule over a traditional, hybrid, or fully remote schedule. To determine if schedule preference was dependent on grade level, Hypothesis 15 ($p <=.001$) was tested and shows that schedule preference is dependent on grade level. Twelfth grade students were almost evenly split between block and traditional schedules, whereas the remaining grades show much more preference toward the block schedule. This preference by 12th graders could be due to the fact that they had experienced a traditional schedule for most of their high school career prior to COVID-19 and that is what they are most used to and therefore prefer. Only 12th grade students that saw specific benefits in the block schedule over the traditional schedule would opt to switch. Next the researcher examined to see if schedule preference was dependent on gender by testing Hypothesis 14 ($p=.652$), and a relationship did not exist. Overall, students heavily favored the block schedule over the others. One possibility for this preference could be that students only have to focus on four classes per day instead of eight for the traditional schedule. That could potentially reduce the homework load and free up some time for students by only having homework for four classes each day and having an extra day until it is due

(alternating A/B days). Few students opted for the fully remote option, only 1.8%, which indicates that students prefer learning in person or feel like they learn more when they are in person, as proved by H5 *p=<.001*. After testing Hypothesis 9 (p<=.001) it showed that many students found some classes taught online to be harder than others, which could cause some students to not want to take similar courses online. Math, Science, and English were the courses that emerged as the hardest to take in a fully remote environment. This could be due to the amount of individual support students may need in math or the amount of discussion or writing in English. Without being in person with a teacher nearby, students may feel alienated, thinking they have to figure everything out on their own. Analysis of Hypothesis 9 (*p<=.001*) showed that Math and Science seemed to be students' most difficult classes, but Hypothesis 10 (*p=.086*) showed that students did not feel like they learned more in any particular subject area. This could be due to the overall negative experience described by Hypothesis 6 (*p=.344*) and Hypothesis 7 (*p=.918*) and the fact that overall students felt like they learned less during ERT than to in-person learning prior to ERT, as shown by Hypothesis5 (*p<=.001*). This analysis of Hypothesis 8 (*p=.289*) revealed that of the 69 students that answered the question, there was no preference in which course they took online. Even though there was no preference, only 51% of students chose to answer that question, which suggests that almost half of students preferred not to take any classes online at all.

Finally, 14.8% of students opted for a hybrid schedule. These students valued certain aspects of the remote teaching experience, but also valued being in person. Some students may have not chosen hybrid because there was a remote component to the schedule. This is a stark difference to teachers' opinions around schedule as 36% of

teachers chose the hybrid schedule. This could be due to an overall more negative experience for students during ERT. This could lead to some students shying away from anything having to do with remote learning, while those that enjoyed the flexibility that online learning provided might see that built into the hybrid schedule. Yu and Canton (2018) found very different results in their study of millennials and Generation Z students. For Generation Z students, they found 24.8% preferred in-person learning, 31.4% preferred online, and 43.8% preferred hybrid learning. For Millennials, 28.4% preferred in-person learning, 41.8% preferred online learning, and 29.8% preferred hybrid learning (Yu et al., 2018 p.4). This is a stark difference from the researcher's findings, having only 1.8% of students preferring online learning; however, Yu and Canton's (2018) study took place prior to ERT. Given the circumstances during the pandemic were not the same as online learning prior to COVID-19, student opinion regarding online learning may have been impacted by their experience during ERT.

In summary, students preferred the block schedule overall. The 12th graders were split roughly 50/50 between the traditional and block schedules. It does appear that students felt some classes were more difficult than others, but that could be due to the actual content and/or the fact that it had to be taught virtually. The survey strongly conveyed that students do not prefer online learning. Looking at the student experience coupled with their schedule preference, it is easy to see why students would shy away from a virtual learning experience. Lack of relationships, support and encouragement, and working in isolation certainly would contribute to students not wanting to learn virtually.

Recommendations for Further Research

This study explored teacher and student experience during ERT as part of the COVID-19 pandemic. The researcher has several recommendations regarding future research. First, both students and teachers reported less learning took place during ERT compared to prior years (NH1 & NH5). Additional data should be collected and analyzed to discover the true extent of learning loss and if student learning was affected more in certain content areas over others.

Secondly, RQ3 revealed several areas that were challenging for students during ERT. Strategies related to time management, organization, and focus could be researched further to better understand the relationship between each skill and student achievement. Additionally, best practices in teaching time management, organization, and focus could be identified. Understanding the relationship and best practices would allow for effective professional development for teachers to be developed and implemented so teachers could incorporate the best practices into everyday lesson plans.

Thirdly, schedule preference among teachers could be further broken down to analyze what each content area prefers. Aspects of the schedule and content area could be compared and contrasted to discover a more conducive schedule that would meet the needs of most content areas within a building. Studies of schools implementing various schedules could also be utilized to provide data from across a greater geographical region.

Finally, relationships emerged as a challenge in RQ1 and RQ3 for both teachers and students. Best practices in online teaching as well as in teacher/student relationship building could be explored to provide teachers with viable strategies of building relationships with students when teaching in an online environment. Although most

schools are back to an in-person model of learning, there are still plenty of virtual schools that could benefit from exploring relationship building in an online platform.

Conclusion

At the onset of this study, the pandemic was still unfolding and uncertainty was the new normal. The researcher knew students, teachers, and education in general would be impacted in many ways and it was important to capture the learning and adjustments that took place during this experience to better education in the future. The researcher, who also experienced ERT as a teacher, only had his experience to draw conclusions from. After performing the study and examining the results, it was clear that everyone had a unique experience, which was positive for some and negative for others. Students especially struggled with ERT and as new studies continue to emerge, we are learning to what extent and at what expense. The study results were contrary to the researcher's initial assumptions, which were that students would have been more positive – not having to go to school, and that teachers would have been more negative – with increased workload. Additionally, the researcher initially assumed that more students would prefer an online schedule versus and in-person one and that teachers would prefer an in-person model. Again, results were contrary to the researcher's assumptions showing that it was the teachers that began to enjoy the flexibility of working from home and it was the students that wanted to be in person. One assumption the researcher correctly made was that people have the capacity to adapt, particularly teachers in this case, by finding new ways to teach, creating new resources, or adapting lessons for a virtual environment. These new resources created during COVID-19 will carry over into the in-person classroom and continue to supplement teaching. Many students also adapted by learning

about themselves as they "learned how to learn." Finally, relationships emerged as an

important part of education. Through their answers to the survey, teachers and students

expressed the value of relationships in education and how it impacts learning. ERT made

it difficult to build and maintain these relationships across screens. As the pandemic

wains, we will continue to learn about the impacts and best practices of teachers and

students during ERT. This study gives insight into students' and teachers' experience

during the COVID-19 pandemic

References

Aaron, D., & Kahn, R. (2022, September 26). Internet. Encyclopedia Britannica.

    https://www.britannica.com/technology/Internet

Alice Springs School of the Air. (n.d.). Our history.

    https://www.schooloftheair.net.au/our-story/history/

Almosa, A. (2002). Use of computer in education, (2nd ed). Riyadh: Future Education

    Library.

American Rescue Plan. (2021). https://oese.ed.gov/offices/american-rescue-plan/

Arruda, E.P. (May, 2020). EDUCAÇÃO REMOTA EMERGENCIAL: Elementos Para

    Políticas Públicas na educação brasileira em tempos de COVID-19. *Emrede, 7(1),*

    257-275.

Basilaia, G., & Kvavadze, D. (2020). Transition to online education in schools during a

    SARS-CoV-2 Coronavirus (COVID-19) pandemic in Georgia. *Pedagogical*

    Research, 5(4), em0060. https://doi.org/10.29333/pr/7937

Bergdahl, N., & Nouri, J. (2020). Covid-19 and crisis-prompted distance education in

    Sweden. *Technology, Knowledge and Learning 26,* 443–459.

    https://doi.org/10.1007/s10758-020-09470-6

Bower, B. L., & Hardy, K. P. (2004). *From distance education to e-learning: Lessons*

    along the way. Jossey-Bass.

Bryson, J. R., & Andres, L. (2020). COVID-19 and rapid adoption and improvisation of

    online teaching: Curating resources for extensive versus intensive online learning

    experiences. *Journal of Geography in Higher Education, 44*(4), 608-623.

    doi:10.1080/03098265.2020.1807478

Canady, R. L., & Rettig, M. D. (1993). Unlocking the lockstep high school

     schedule. *Phi Delta Kappan*, 75(4), 310+,

     https://link.gale.com/apps/doc/A14723501/AONE?u=sain20269&sid=AONE&xi

     d=f902e5a6.

Caulfield, J. (2011). How to Design and Teach a Hybrid Course: Achieving Student-

     Centered Learning through Blended Classroom, Online and Experiential

     Activities. Sterling, VA: Stylus Publishing. ISBN: 9781579224226

Centers for Disease Control. (2021). Operational Strategy for K-12 Schools through

     Phased Prevention. (n.d.). https://www.cdc.gov/coronavirus/2019-

     ncov/community/schools-childcare/operation-

     strategy.html#anchor_1616080023247

China Education Television. (2021, October 13).

     https://en.wikipedia.org/wiki/China_Education_Television

Coronavirus Disease (COVID-19). (n.d). https://www.who.int/health-

     topics/coronavirus#tab=tab_1

Crotty, J. M. (2012, November 15). Distance Learning Has Been Around Since 1892,

     You Big MOOC.

     https://www.forbes.com/sites/jamesmarshallcrotty/2012/11/14/distance-learning-

     has-been-around-since-1892-you-big-mooc/?sh=1fe692d92318

DiPietro, M. (2010). Best practices in teaching K-12 online: Lessons learned from

     Michigan

     Virtual School teachers. *Journal of Interactive Online Learning, 7*(1), 10-35.

     https://www.ncolr.org/jiol/issues/pdf/7.1.2.pdf

Elon University. (n.d.). 1890s-1930s Radio: Imagining the Internet.

https://www.elon.edu/u/imagining/time-capsule/150-years/back-1890-1930/

Essa, S. (2020, May 16). Started with letters in the 19th century, History of "distance

learning." https://www.almotahidaeducation.com/?p=3822

Florida National University. (2019). The Evolution of Distance Learning.

fnu.edu/evolution-distance-learning/

Florida Virtual School. (n.d.). An Established Leader in Online Education.

https://www.flvs.net/about-flvs

Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online Learning and Emergency Remote

Teaching:

Opportunities and Challenges in Emergency Situations. *Societies*. *10(86)*. pp 1-18.

doi:10.3390/soc10040086

GBH Forum Network. (2018, Nov 21), *Liz Covart on The History of Audio Education.*

YouTube. https://www.youtube.com/watch?v=xgMAC6VrjqM

Genota, L. (2018). Why "Generation Z" Learners Prefer YouTube Lessons. *Education

Week*, *38*(4), 6.

Giovannella, C., Passarelli, M., & Persico, D. (2020). Measuring the effect of the

COVID-19 pandemic on the Italian Learning Ecosystems at the steady state: a

school teachers' perspective.

Girelli, C., Bevilacqua, A., & Acquaro, D. (2020). COVID-19: What Have We Learned

from Italy's Education System Lockdown? International Studies in Educational

Administration, 48(3), pp. 51-58.

Gruber, R., Saha, S., Somerville, G. Boursier, J., & Wise, M. (2020). The impact of

    COVID-19 related school shutdown on sleep in adolescents: a natural experiment.

    Sleep Medicine, 76. 33-35

Hamann, K., Pollock, P. H., Smith, G. E., & Wilson, B. M. (2016). Distance education

    and the scholarship of teaching and learning in political science. *Politics, 37*(2),

    229-238. Doi:10.1177/0263395716632384

Hansbrough, A., & Hansbrough, A. (2014, February 27). American School of the Air.

    https://info.umkc.edu/specialcollections/archives/tag/american-school-of-the-air

Harting, K., & Erthal, M. (2005). History of Distance Learning. *Information Technology,*

    Learning, and Performance Journal. 23(1). P. 35

History. (n.d.). https://www.assoa.nt.edu.au/the-school/our-school/history/

Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., & Bond, M. A. (2020). The difference

    between emergency remote teaching and online learning.

Hogeback, J. (n.d.). Who Invented the Internet?. Encyclopedia Britannica.

    https://www.britannica.com/story/who-invented-the-internet

Holmberg, B. (2005). *The evolution, principles and practices of distance education*.

    Bibliotheks- und Informationssystem der Univ.

Hopkins, S., & Haworth, M (n.d). The History of Educational Radio and its Effect on

    Literacy and Education Technology Implementation.

    https://voicethread.com/myvoice/thread/691487/3656685/4094292

Indiana College Network. (n.d.). IHETS and Its Mission.

    http://www.icn.org/index.php/coordinators-handbook/background-

    information/ihets-and-its-mission

Kaden, U. (2020). COVID-19 School Closure-Related Changes to the Professional Life

of a K–12 Teacher. Education Sciences. 10(6):165.

https://doi.org/10.3390/educsci10060165

Kantnor, H. (2015). Distance Education and the Evolution of Online Learning in the

United States. *Curriculum and Teaching Dialogue*, Vol. 17, Nos. 1 & 2.

https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1026&context=law_fa

cpub

Kuhfeld, M., Soland, J., Lewis, K., & Morton, E. (2022). The pandemic has had

devastating impacts on learning. What will it take to help students catch up?

https://www.brookings.edu/blog/brown-center-chalkboard/2022/03/03/the-

pandemic-has-had-devastating-impacts-on-learning-what-will-it-take-to-help-

students-catch-up/

Ladyzhets, B. (2021). 11 Lessons from U.S. Schools that Stayed Open During the

Pandemic. https://www.the74million.org/article/11-lessons-from-u-s-schools-that-

stayed-open-during-the-pandemic/

Lieberman, M. (2020). How Hybrid Learning Is (and Is Not) Working During COVID-

19: 6 Case Studies. https://www.edweek.org/leadership/how-hybrid-learning-is-

and-is-not-working-during-COVID-19-6-case-studies/2020/11

Mansbach, J., & Austin, A. E. (2020). Nuanced Perspectives about Online Teaching:

Mid-Career and Senior Faculty Voices Reflecting on Academic Work in the

Digital Age. *Innovative Higher Education, 43*(4), 257-272. Doi:10.1007/s10755-

018-9424-4

Mupinga, D. M. (2005). Distance Education in High Schools: Benefits, Challenges, and

    Suggestions. *The Clearing House: A Journal of Educational Strategies, Issues*

    and Ideas, 78(3), 105-109. Doi:10.3200/tchs.78.3.105-109

National Center for Education Statistics. (2018). Undergraduate enrollment.

    https://nces.ed.gov/programs/coe/indicator/cha

National Coalition for Public School Options. (2021). 2021 Annual Report.

    https://uploads-ssl.webflow.com/618576e680385c84808de762/61c52723d471975

    cdd407146_2021%20PSO%20Annual%20Report.pdf

North, A. (2020). Hybrid school might be the worst of both worlds.

    https://www.vox.com/21515864/covid-hybrid-school-learning-remote-plan-

    pandemic

Open University Digital Archive. (n.d.). https://www.open.ac.uk/library/digital-

    archive/about

Ohio School of the Air. (n.d.). https://ohiohistorycentral.org/w/Ohio_School_of_the_Air

Pane, J., Steiner, E., Baird, M., & Hamilton, L. (2015). Continued Progress: Promising

    Evidence on Personalized Learning. Doi:10.7249/rr1365

Penn State. (n.d.). About Us. https://www.outreach.psu.edu/about/

Rehayu, R.P., & Wirza, Y. (2020, December). Teachers' Perception of Online Learning

    during Pandemic COVID-19. *Jurnal Penelitian Pendidika,*20(3), 392-406.

    https://doi.org/10.17509/jpp.v20i3.29226

Rodríguez-Muñiz LJ, Burón D, Aguilar-González Á,, & Muñiz-Rodríguez L.(2021).

    Secondary Mathematics Teachers' Perception of Their Readiness for Emergency

Remote Teaching during the COVID-19 Pandemic: A Case Study. Education
Sciences. 11(5):228. https://doi.org/10.3390/educsci11050228

Royal Flying Doctors. (2019, Sep.). How Alfred Traeger gave the outback its voice.
https://www.flyingdoctor.org.au/qld/news/how-alfred-traeger-gave-outback-its-voice/

Schaefer, M., Abrams, S., Kurpis, M., Abrams, M., & Abrams, C. (2020, June). "Making
the "Making the Unusual Usual:" Students' Unusual Usual:" Students'
Perspectives and Experiences of Learning at Home during the COVID-19
Pandemic. *Middle Grades Review. 2(6).* 1-18.

Shamir-Inbal,,T., & Blau, I. (2021). Facilitating Emergency Remote K-12 Teaching in
Computing-Enhanced Virtual Learning Environments During COVID-19
Pandemic - Blessing or Curse? *Journal of Educational Computing Research.
59(7)* 1243-1271. DOI: 10.1177/0735633121992781

Simonson, M., & Berg, G. A. (2016, November 7). distance learning. Encyclopedia
Britannica. https://www.britannica.com/topic/distance-learning

Simonson, M. R., Smaldino, S. E., & Zvacek, S. (2019). *Teaching and learning at a
distance: Foundations of distance education*. Information Age Publishing.

Silva de Souza, G. H., Bento Marques, Y., Siqueira Jardim, W., Cesar Lima, N., Lopes
Junior, G., & Silveira Ramos, R. (2020). Brazilian Students' Expectations
Regarding Distance Learning and Remote Classes During the COVID-19
Pandemic. *Educational Sciences: Theory & Practice*, *20*(4), 66–80.
https://doi.org/10.12738/jestp.2020.4.005

Straits Research. (2022). Online Education Market Size is projected to reach USD 198.9

Billion by 2030, growing at a CAGR of 23.12%: Straits Research.

https://www.globenewswire.com/en/news-

release/2022/08/24/2504123/0/en/Online-Education-Market-Size-is-projected-to-

reach-USD-198-9-Billion-by-2030-growing-at-a-CAGR-of-23-12-Straits-

Research.html#:~:text=It%20is%20expected%20to%20reach,period%20(2022%E

2%80%932030).

Thomas, J., & Foster, H. (May, 2020). Higher Education Institutions Respond

to Epidemics. *History of Education Quarterly,* v60. 185-189.

doi:10.1017/heq.2020.11

United Nations. (2020). Policy Brief: Education during COVID-19 and beyond.

un.org/development/desa/dspd/wp-

content/uploads/sites/22/2020/08/sg_policy_brief_COVID-

19_and_education_august_2020.pdf

UNICEF. (2020). 40 million children miss out on early education in critical pre-school

year due to COVID-19. https://www.unicef-irc.org/article/2027-40-million-

children-miss-out-on-early-education-in-critical-pre-school-year-due-to.html

United States Department of Education. (n.d). Supporting Students During the COVID-

19 Pandemic: Maximizing In-Person Learning and Implementing Effective

Practices for Students in Quarantine and Isolation.

https://www.ed.gov/coronavirus/supporting-students-during-COVID-19-

pandemic#:~:text=Data

Visual Academy. (2021). The History of Online Schooling.

https://www.onlineschools.org/visual-academy/the-history-of-online-schooling/

Wang, Q. (n.d.). Expanding Access with Satellite-enabled Distance Education. *Systemics,*

Cybernetics and Informatics. Vol. 4. N6. 121-126

Weitzel, A. (2020, May). The Difference Between Correspondence Courses And

Distance Learning. https://coursekey.com/blog/the-difference-between-

correspondence-courses-and-distance-learning/

Whitmore School. (2021, May 26). Mission & History.

https://www.whitmoreschool.org/about/mission-history/

Wisconsin School of the Air. (n.d.). https://wcftr.commarts.wisc.edu/exhibits/radio-

pioneers-madison/wisconsin-school-air

Williams, T., McIntosh, R., & Russell, W. (2021). Equity in Distance Education During

COVID-19. Research in Social Sciences and Technology, 6(1), 1-24.

https://doi.org/10.46303/ressat.2021.1

World Health Organization. (2020, April 19). WHO Timeline COVID-19.

https://www.who.int/news/item/27-04-2020-who-timeline---COVID-19

WorldWideLearn. (n.d.). The History of Distance Learning: An Online Education

Timeline. (2021, June 18). https://www.worldwidelearn.com/articles/history-of-

distance-learning/

Yu, E., & Canton, S. (2018). Student-Inspired Optimal Design of Online Learning for

Generation Z. *Journal of Educators Online,* 1*7*(1), 10-35.

https://files.eric.ed.gov/fulltext/EJ1241579.pdf

Appendix A: Survey Questions

Teacher Survey questions:

1. What is your Gender?

    a. Male

    b. Female

    c. Non-Binary/third gender

    d. Prefer not to answer

2. What Subject do you teach?

    a. English

    b. Math

    c. Science

    d. Social Studies

    e. Other Elective

3. Did you have experience teaching virtually prior to COVID-19 Emergency

    Remote Teaching?

    a. Yes

    b. No

4. Describe your level of anxiety teaching virtually versus teaching in a traditional

    in-person classroom.

    a. Low

    b. About the same

    c. Higher

5. How would you describe your experience with emergency remote teaching overall?

    a. Overall positive experience

    b. Overall negative experience

6. In shifting from a traditional schedule to remote teaching, rank the following areas by difficulty in your remote teaching? (1 - most challenging, 8- least challenging)

    a. Using Technology

    b. Teaching methods/strategies in the new remote environment

    c. Classroom management

    d. Planning activities/lessons

    e. Finding appropriate resources for students

    f. Relationship building

    g. Group work

    h. Other

7. Rank the teaching strategies below by what you found most helpful to least helpful. (1- most helpful, 6- least helpful)

    a. Individual check ins with students

    b. Regular feedback from students about their learning (surveys, forms, exit slips,etc.)

    c. Providing additional resources for students for outside of class

    d. Posting lesson recordings online

    e. Online discussions/forums

      f. Flipping the classroom

8. Are there any strategies or new methods you learned while teaching remotely that you intend to carry forward post-pandemic?

9. What aspects, both personally and professionally, of the remote teaching schedule did you find beneficial?

10. What were the negative aspects, both personally and professionally, of the remote teaching schedule?

11. What are the limitations of teaching remotely as it relates to your curricular area? (select all that apply)

      a. Group work

      b. Hands on activities/labs

      c. Student access to specific tools/instruments

      d. Student access to course specific materials

      e. Other additional limitations

12. In your classes, do you feel like your students learned less, more, or at a similar level during emergency remote learning?

      a. Students learned less

      b. Students learned at a similar level

      c. Students learned more

13. Given a choice, what is your preferred schedule type?

      a. Traditional schedule (8 blocks per day, in person)

      b. Block schedule (8 blocks split between A and B day)

    c. Hybrid (mainly in person, but also some remote - Ex. four days/wk in person + one remote day each week)

    d. Remote teaching (all virtual classes)

Student Survey Questions

1. What grade are you currently in?

    a. 9

    b. 10

    c. 11

    d. 12

2. What is your Gender?

    a. Male

    b. Female

    c. Non-Binary/third gender

    d. Prefer not to answer

3. Thinking back to your experience last school year, do you feel like you learned less, more, or at a similar level during remote learning compared to a typical year with in-person learning?

    a. Less

    b. More

    c. At a similar level

4. Would you say that remote learning was an overall positive or negative experience for you?

    a. Overall positive

      b. Overall negative

5. Of the classes listed below, were there any classes you felt like you learned more in during remote learning compared to in-person learning? (select all that apply)

      a. English

      b. Math

      c. Science

      d. Social Studies

      e. Other Elective

6. Which aspects of remote learning did you find challenging? (select all that apply)

      a. Homework

      b. Getting the help I needed

      c. Organization

      d. Time management

      e. Focusing on school work

      f. Social-Emotional health

      g. Other

7. What aspects of remote learning did you find beneficial? (select all that apply)

      a. Flexibility / Work when its convenient for you

      b. Teacher office hours / extra help

      c. Building time management skills

      d. Learn at your own pace

      e. Online resources

      f. video lessons

g. Other

8. Are there any learning strategies or new methods you learned during remote learning that you will carry forward post-pandemic? (could be anything that you found helpful with your learning)

9. Select the 2 hardest classes during remote learning?

    a. English

    b. Math

    c. Science

    d. Social Studies

    e. Other Elective

10. Are there any classes you would prefer to take remotely? (select all that apply)

    a. English

    b. Math

    c. Science

    d. Social Studies

    e. Other Elective

11. Of the following school schedules, what would be your first choice?

    a. Traditional schedule (8 blocks per day, in person)

    b. Block schedule (8 blocks split between A and B day)

    c. Hybrid (mainly in person, but also some remote - Ex. four days/wk in person + one remote day each week)

    d. Remote teaching (all virtual classes)

Appendix B: Email Recruitment Script

Email Recruitment script

For parents of minors:

As a doctoral candidate at Lindenwood University, I am requesting your Clayton High School student's participation in a study entitled: Lessons Learned from Emergency Remote Teaching and Learning in a Suburban High School. The goal of the study is to learn from your students learning experience over the course of the pandemic, their scheduling preferences, and if there are strategies or methods they learned that they will carry forward post-pandemic. Their participation is voluntary and would take about 5-10 minutes of their time. Since your student is under 18 years of age, their participation requires your consent. Should you grant consent, simply provide your student with the link to the survey. If you would prefer they do not participate, then do not provide them the link.

SURVEY LINK HERE

The survey is anonymous – there will be no personally identifiable information collected. There is no direct benefit for participation, we hope that what we learn from students' and teachers' experiences will help others in the future.

For more details regarding the survey, you will find the attached Consent on behalf of a minor form that contains the study details as well as contact information you may retain for your records should you have any questions or concerns. This information will also be located on the first page of the survey.

We hope that your student will be able to participate and thank you for your consideration.

SURVEY LINK HERE.

Appendix C: Survey Research Information Sheet

LINDENWOOD

Survey Research Information Sheet

You are being asked to participate in a survey conducted by Steve Beauchamp at Lindenwood University. We are doing this study to learn about how students and teachers adapted their teaching and learning over the course of the pandemic and their preferences on schedule types. Participants will be asked about their experience and preferences around teaching and learning. The survey will take roughly 5-10 minutes to complete this survey.

Your participation is voluntary. You may choose not to participate or withdraw at any time by simply not completing the survey or closing the browser window.

There are no risks from participating in this project. We will not collect any information that may identify you. There are no direct benefits for you participating in this study.

<u>WHO CAN I CONTACT WITH QUESTIONS?</u>

If you have concerns or complaints about this project, please use the following contact information:

Steve Beauchamp – Smb871@lindenwood.edu

Sherrie Wisdom, faculty advisor - swisdom@lindenwood.edu

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or mleary@lindenwood.edu.

By clicking the link below, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I

will be required to do, and the risks involved. I understand that I can discontinue

participation at any time by closing the survey browser. My consent also indicates that I

am at least 18 years of age.

You can withdraw from this study at any time by simply closing the browser window.

Please feel free to print a copy of this information sheet.

Appendix D: Research Study Consent Form

LINDENWOOD

Research Study Consent Form

Study Title: Lessons Learned from Emergency Remote Teaching and Learning in a

Suburban High School

Note: "You" in this form refers to the minor participant. If an activity or requirement

refers to the parent or guardian consenting on behalf of the minor, this will be clearly

indicated.

Before reading this consent form, please know:

- Your decision to participate is your choice

- You will have time to think about the study

- You will be able to withdraw from this study at any time

- You are free to ask questions about the study at any time

After reading this consent form, we hope that you will know:

- Why we are conducting this study

- What you will be required to do

- What are the possible risks and benefits of the study

- What alternatives are available, if the study involves treatment or therapy

- What to do if you have questions or concerns during the study

Basic information about this study:

- The researcher hopes to learn how you adapted your learning during emergency remote learning, your preferences around schedule, and any new strategies/methods you hope to carry forward post-pandemic
- You will be asked to complete a short survey which should take 5-10 minutes of your time.
- There are no risks from participating in this project. We will not collect any information that may identify you. There are no direct benefits for you participating in this study.
- If you give consent for your student to participate, simply share this link with them:

LINDENWOOD

Research Study Consent Form

Study Title: Lessons Learned from Emergency Remote Teaching and Learning in a

Suburban High School

You are asked to participate in a research study being conducted by Steve Beauchamp

under the guidance of Dr. Sherrie Wisdom at Lindenwood University. Being in a research

study is voluntary, and you are free to stop at any time. Before you choose to participate,

you are free to discuss this research study with family, friends, or a physician. Do not feel

like you must join this study until all of your questions or concerns are answered. If you

decide to participate, you will be asked to sign this form.

Why is this research being conducted?

The researcher hopes to learn how you adapted your learning during emergency remote

learning, your preferences around schedule, and any new strategies/methods you hope to

carry forward post-pandemic

We will be asking about 900 other people to answer these questions.

What am I being asked to do?

We are asking participates to fill out a one-time survey about their experience during

emergency remote teaching over the course of the pandemic. Should you choose to give

consent for your Clayton High School student to participate, you may share the following

link with them. The survey is a one-time survey and should take 5-10 minutes to

complete.

How long will I be in this study?

Participation involves roughly 5-10 minutes. Participants will not be contacted after the initial survey.

What are the risks of this study?

Privacy and Confidentiality

We will not be collecting any information that will identify you. We will be collecting data from you using an internet survey. We take every reasonable effort to maintain security. The survey will be collected via *Qualtrics*, and no identifiable information will be collected. Additionally, once the data has been collected, it will be stored offline, password protected on an external hard drive. It is always possible that information during this research study may be captured and used by others not associated with this study, but again, no personally identifiable information will be collected.

What are the benefits of this study?

You will receive no direct benefits for completing this survey. We hope what we learn may benefit school districts, students, and teachers in the future.

What if I do not choose to participate in this research?

It is always your choice to participate in this study. You may withdraw at any time. You may choose not to answer any questions or perform tasks that make you uncomfortable. If you decide to withdraw, you will not receive any penalty or loss of benefits. If you would like to withdraw from a study, please use the contact information found at the end of this form.

What if new information becomes available about the study?

During the course of this study, we may find information that could be important to you and your decision to participate in this research. We will notify you as soon as possible if such information becomes available.

How will you keep my information private?

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, and representatives of state or federal agencies.

How can I withdraw from this study?

Notify the research team immediately if you would like to withdraw from this research study.

Who can I contact with questions or concerns?

If you have any questions about your rights as a participant in this research or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the Lindenwood University Institutional Review Board Director, Michael Leary, at (636) 949-4730 or mleary@lindenwood.edu. You can contact the researcher, Steve Beauchamp directly at stephenbeauchamp@claytonschools.net. You may also contact Dr. Sherrie Wisdom at swisdom@lindenwood.edu.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. To give consent for participation in the research described above, simply forward the survey link to your current Clayton High School student. Thank you for your consideration

Survey link: https://lindenwood.az1.qualtrics.com/jfe/form/SV_1XnSvxY6eJNGgxU